THE IRON AGE

THURSDAY, NOVEMBER 20, 1890.

THE MAINE.

At 12.45 on Tuesday last the first war ship built by the United States as a part of the new navy, and the first armored ship ever built in this country, was launched at the Brooklyn Navy Yard. The Maine was authorized by act of Congress approved August 3, 1888. Her cost was not to exceed $2,500,000, and she was to be completed on or before October 3, 1892. Her engines are now being built at the works of N. F. Palmer, Jr., & Co., this city. She is thoroughly American in every respect. Her hull was designed by the Bureau of Construction, her engines and boilers are absolutely the work of the Bureau of Steam Engineering, and her guns and other armament are to be from designs furnished by the Bureau of Ordnance, and all material entering into her construction will be produced and manufactured at home. The first keel plate was laid October 10, 1888.

In general appearance the Maine resembles the Brazilian armored cruiser Riachuelo, but is somewhat larger and carries heavier guns and thicker armor, besides having greater endurance. She is a twin screw armored turreted vessel of the belted cruiser type, the vital parts being protected by a belt of armor sufficient in length to insure stability, even should the ends be riddled above the under water protective decks extending from the ends of the belt to the extremity of the vessel. The general dimensions are as follows:

Length between perpendiculars	330 feet.
Breadth, extreme	57 feet.
Mean draft of water	21⅓ feet.
Displacement to above draft	6648 tons.
Indicated horse-power	8750
Speed	17 knots.
Thickness of armor belt	12 inches.

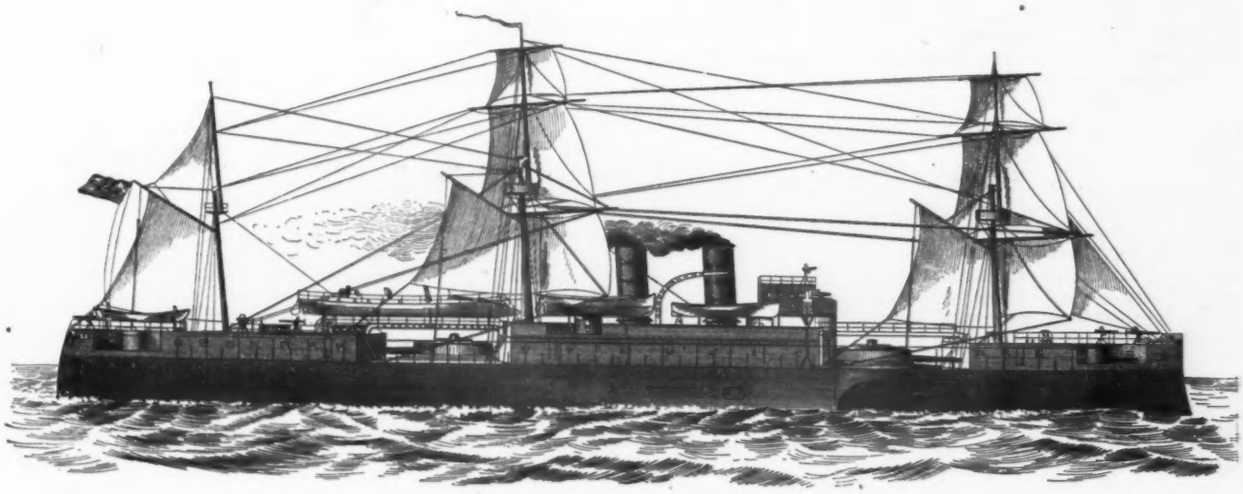
The water line belt of steel armor just mentioned extends for a length of about 180 feet amidship, and from 3 feet above to 4 feet below the water line. From a point 1 foot below the water line the thickness of the armor gradually decreases to 6 inches at the bottom. The wood backing is 8 inches thick. The plating behind the armor is in two thicknesses, stiffened by horizontal angle bars. The athwartship armor bulkhead at the forward end of the armor belt is 6 inches thick. The revolving turrets are protected by 10½-inch steel armor, the gun port plates being 11½ inches. The revolving parts of the turrets and the spaces required for loading are protected by fixed breastworks of oval shape 10½ inches thick. There is an armored conning tower, 10 inches thick, located on the central superstructure, elliptical in shape, measuring 10 feet 6 inches by 9 feet. An armored tube 4½ inches thick runs from this tower to the armor deck, to protect steering gear, speaking tubes, &c. The armor deck plating in the works of the armor belt will be in two thicknesses, so disposed that one layer of plating forms edge strips and butt straps for the other. The armor deck slopes from the top of the belt at its after end, the slope being 4 inches thick. The under water deck at the end is 2 inches thick, protecting the magazine and steering gear, and so arranged as to give great stiffness to the ram bow. Coffer dams will be built above the engine and fire room hatches to a height of 3 feet above the berth deck.

The vessel will have two vertical inverted triple-expansion engines in separate water tight compartments, capable of developing 8750 horse-power. The cylinders are 35½, 57 and 88 inches in diameter, respectively, with a stroke of 36 inches. There will be eight cylindrical return tubular boilers, 14 feet 8 inches diameter and 10 feet long, each having three furnaces, the total grate surface being 552 square feet. The fire rooms are not to be put under pressure, but the forced draft will be secured by leading air to the under side of the grate bars, forced through ducts by four blowers of 26,000 cubic feet capacity per minute. There are two three-bladed screws with a diameter of about 15 feet. The coal at normal draft is 400 tons, but the bunker capacity is 822 tons. The endurance and radius of action at different speeds with 400 tons of coal are: At 17 knots per hour, 960 knots; at 15 knots per hour, 1617 knots; at 10 knots per hour, 4550 knots.

The vessel is bark rigged, spreading 7135 square feet of canvas. The fore and main masts are fitted with military tops, each mounting two machine guns. The rigging is brought down in such a manner as not to interfere with the fire of the guns. In addition to the armored conning tower there is a wooden chart house, fitted with chart tables, speaking tubes, indicators, steering wheels, &c., for use when not in action. A steam steering engine is fitted, in addition to the hand steering arrangements, and there are steam capstans, windlasses and hoists. The forward hawse pipes are so formed as to be adapted to a stockless anchor, the entrance being enlarged to take the shank and flukes of the anchor, the latter stowing itself automatically within the ship on heaving to. Shutters will be fitted over the mouths of the hawse pipes. There are 174 water tight compartments in the vessel and ample provision is made for natural light and ventilation by means of skylights, side lights and cowls. Artificial ventilation is also provided for. The vitiated air of the engine room will be withdrawn by the fans used for forced combustion. The explosive gases of the coal bunkers are led into the funnel casings and fresh air pipes lead to the upper deck.

The pumping and draining system is very elaborate, every compartment of the vessel being in connection with powerful steam and hand pumps. The electric plant consists of four sets of dynamos and engines, so connected that any one can supply all the circuits for the incandescent lamps. There are three search lights, any of which can be connected with any dynamo. These dynamos supply also light for internal illumination, side lights, head lights and lights in magazines and bunkers. In addition to the usual allowance of boats supplied to a man of war, including steam launch and cutter, there are two torpedo boats, 60 feet long. The hight in the clear between the berth deck beams is 7 feet 10 inches. The hight in the clear between the main deck plank and bottom of superstructure decks is 6 feet 8 inches.

The main battery consists of four 10-inch and six 6-inch breech loading guns. The 10-inch guns are mounted in pairs in turrets protected by 10½ inches of steel armor. The turrets are placed *en echelon*, so that four guns can be fired ahead or astern. Each has a compiete broadside train on one side of 180° and on the other side of over 60°. Each turret has two loading positions The guns are loaded, elevated and trained by the latest and most approved systems, all machinery



UNITED STATES ARMORED CRUISER MAINE.

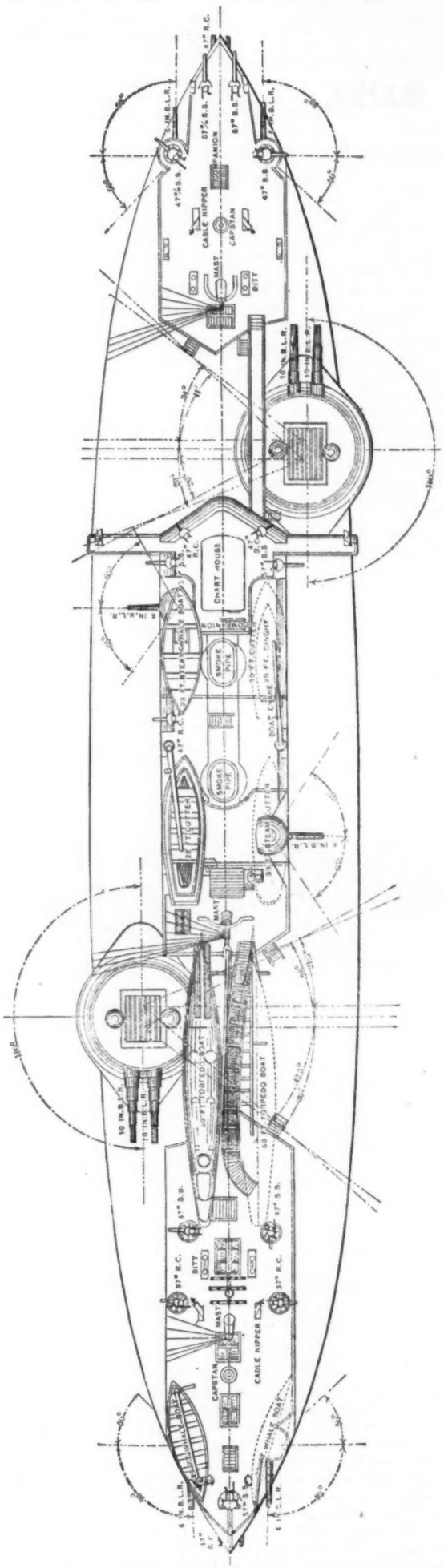
being protected by oblong breastworks 10½ inches thick. The 6-inch guns are mounted on central pivot carriages, protected by segmental steel shields 2 inches thick. Two 6-inch guns are placed directly forward and two aft, having a train each of 147°. A 6-inch gun is mounted on each side of the central superstructure, having a train of 130°. The forward and after guns can be converged at a point 150 feet from their respective ends. The four 10-inch and two 6 inch guns can be fired directly ahead or astern, and the broadside fire of four 10-inch and three 6-inch guns can be converged at a point 100 feet from the side. The secondary battery is so disposed as to secure a heavy bow and stern fire. It consists of four 57 mm. rapid fire guns, four 47 mm. rapid fire guns, four 47 mm. revolving cannon, nine 37 mm. revolving cannon and four Gatling guns. There are seven torpedo launching tubes or guns, three below the water and four on the berth deck. The 10-inch guns fire a projectile of 500 pounds weight with 250 pounds of powder, and have a maximum effective range of about 9 miles. The weight of shot that can be fired ahead or astern from the main battery is 2200 pounds, and either side 2300 pounds.

We are in receipt of a copy of "The Heart of the Rockies," published by the Colorado Midland Railway. This is quite an elaborate work, consisting of some 200 pages of letterpress and illustrations descriptive of the scenery traversed by the Colorado Midland system or within easy reach of it. The book contains a great deal of most interesting information relative to this part of the country, great pains having been taken by the author to secure everything that a tourist would desire to know. The illustrations are profuse, covering bits of romantic scenery, cuts of mountain resorts, and views in Denver, Salt Lake City and other Rocky Mountain cities. It is a most excellent guide book and will be highly appreciated by those who secure a copy of it. The material interests of the section are not neglected, a great deal of information being given regarding the industries and occupations of the Rocky Mountain people. Copies can be procured by addressing the company at Denver or Colorado Springs, Col.

C. F. Dutton, who took charge of the Schlesinger syndicate's new road, the Escanaba, Iron Mountain and Western, after retiring from the general managership of the Milwaukee and Northern, will remain permanently with that line. At present Mr. Dutton's headquarters are at Iron Mountain, and the general offices of the road will probably remain there for a while at least. The substructure of the big ore dock at Escanaba is about complete, and the superstructure will be built during the winter. Within a year from the time when work was begun on it the road will be in use for the transportation of ore.

The old time theory that the copper formations of the Upper Michigan peninsula crop out on the Wisconsin side of the State line seems to be confirmed by recent discoveries of copper ore near Mellen, Ashland County. The deposit is very large and the ore has been pronounced high grade by assayists. The land belongs to Ashland parties, who propose to develop the newly discovered copper field.

Rumors have been in circulation for some time past that a German syndicate has been making efforts to obtain control of the Illinois Steel Company.



GUN DECK PLAN OF UNITED STATES ARMORED CRUISER MAINE.

The Uniform Classification in Illinois.

The Illinois Railroad and Warehouse Commission has determined to put in force in that State January 1 next, the uniform classification of freight agreed upon by the railroads, and has adopted the following order in reference thereto for the information of the railroads and the people of the State:

Whereas, Great confusion, inconvenience and injustice are in the judgment of this commission occasioned by the use of different and widely varying classifications of freight, and it is highly desirable, as conceded by most of the managers of railroads and as expressed and urged by the Interstate Commerce Commission, to bring into use a single, comprehensive and uniform classification which will apply to all shipments of freight upon all railroads; and

Whereas, We believe the adoption and use of such a classification would greatly benefit the shippers of this State, among other ways by preventing in many cases the application of a higher tariff to goods shipped under the more general and imperfect classifications now in use than would be possible if a more full and specific classification were adopted, which would show every shipper at a glance the correct classification of his freight and the proper charge for transporting the same; therefore, be it

Ordered, 1. That the uniform classification of freight prepared by the standing Committee on Uniform Classification appointed by the Convention of Tariff Officers at their meeting in Chicago, December 4 and 5, 1888, be and the same is hereby adopted by the Railroad and Warehouse Commission of Illinois, to take effect and be in force from and after January 1, 1891.

2. This action relates only to such articles as are classified in the report of said committee and not to such as are unclassified therein, being disposed of under special rules or by reference to tariff. These unclassified articles are left to be disposed of by subsequent special action.

3. The commission will at an early date adopt its tariff of rates to said classification, and cause the same to be printed, together with said classification, and furnished to the several roads of the State before January 1, 1891, as provided by law.

4. This preliminary action is taken for the information of the several companies and with a view to enabling them to be ready for the proposed change.

Naval Steel Inspectors. — Secretary Tracy made a new departure in ordering Chief Engineer David Smith to duty as a member of the Steel Inspection Board of the Navy Department. This board has direct supervision of the inspection of the steel that enters into both hull and machinery construction in the navy. Heretofore the Construction Corps has not been represented on the board, and the Engineer Corps has only been represented by a young assistant engineer, junior to all the other members of the corps. At the recent steel conference some of the contractors expressed the opinion that better results would be obtained if the inspection was in the hands of the constructors and engineers, the two corps concerned with working up the material after its inspection. The Construction Corps has not yet been given a representative on the board, owing largely to the small number of officers in the corps; but the appointment of Chief Engineer Smith gives the engineers great weight on the board, as he is regarded as one of the best authorities on steel in the service. He has made a special study of metallurgy for many years, and has been frequently detailed by the Department for important experimental work. He was a member of the combined Army and Navy Board which conducted at Watervliet Arsenal some years ago the most elaborate series of tests of various metals that has been undertaken in the United States.

In the article entitled "Notes by a German Engineer," on page 797 of *The Iron Age* of November 6, the statement was made that a new forging press at the Altoona shops was designed by Paul Kreuzpointner. This was an error, the press having been built by Fielding & Platt, of Gloucester, England.

Pig Iron Manufacture in Pittsburgh.

In the Pittsburgh district, which embraces all the territory lying within a radius of 40 miles of that city, are located at the present time a total of 24 completed stacks, with two in course of erection. In the list of completed furnaces we include the new stack of the Isabella Furnace Company, at Etna, Pa., which is ready for blast and has gone in during the present week. The two stacks reported as building are those of the Monongahela Furnace Company, at McKeesport, Pa., one of which we understand will be ready for blast within 30 days. At the present writing four of the 23 stacks are idle for repairs, these being one stack of the Isabella Furnace Company, one of the Carrie Furnace Company, one of Shoenberger & Co. and Soho Furnace, of the Moorhead-McCleane Company. In the production of pig iron in the entire country, the furnaces in the Pittsburgh district hold a commanding position. This is largely due to the fact that in that district are located the furnace plants of the Carnegie firms, whose production alone for this year will probably equal one-tenth of the entire production of the country. Arranging the furnaces in alphabetical order with number of stacks at each plant, they are as follows:

Name of furnace or location.	No. of stacks.
Carrie	2
Clinton	1
Edgar Thomson	7
Edgar Thomson, spiegel	2
Edith	1
Eliza	3
Isabella	3
Lucy	2
Monongahela	2
Shoenberger	2
Soho	1

The plant of the Carrie Furnace Company is located at Rankin Station, on the line of the Baltimore and Ohio Railroad, a few miles east of Pittsburgh. The concern have their own coke ovens and manufacture all the coke they use. Clinton Furnace is located on the South Side, Pittsburgh, and is owned and operated by the Clinton Iron and Steel Company. This is one of the oldest furnaces in the country, having been built originally in 1859, but was remodeled during the present year, and can now be classed as a modern blast furnace. It was operated for many years by the firm of Graff, Bennett & Co., which failed a few years ago and is now out of existence.

The Edgar Thomson plant is located at Braddock, and consists of nine furnaces, which are designated by the first nine letters of the alphabet This plant is owned by Carnegie Brothers & Co., Limited, and is one of the finest and best equipped blast furnace plants in the world. It is here that some records for production have been made that have amazed the metallurgical world. The entire nine furnaces are now in successful operation and producing largely. Seven of them are operated on Bessemer and the other two on spiegel and ferromanganese. While the amount of pig iron made by this firm is enormous, very little of it finds its way into the open market, almost the entire output being consumed by the other plants operated by the Carnegie concern. In fact, it is more often the case that the firm are buyers of pig iron than sellers.

Edith Furnace is located in Allegheny City, Pa., and is owned and operated under lease by the Monongahela Furnace Company, of McKeesport. It will probably be removed to that place before long, and operated in conjunction with the two stacks now being erected there by the Monongahela Furnace Company.

The Eliza stacks, three in number, are owned by Laughlin & Co., Limited, and are located at Laughlin Station, on the line of the Baltimore and Ohio Railroad.

The Isabella plant contains three stacks at Etna, a few miles from Pittsburgh, on the line of the West Penn Railroad. The plant is owned and operated by the Isabella Furnace Company. A part of their output is used at the Etna Iron Works, of Spang, Chalfant & Co., and at the plant of the Spang Steel and Iron Company, Limited, also located at Etna. At present but one stack is in operation, one being idle for repairs and the other new stack has not yet been put in operation. The last named is fitted up with a new design of hot blast stove, the invention of Hugh Kennedy, manager of the plant. It is a four pass stove, and is expected to do good work.

The Lucy furnaces are situated on Fifty-first street, Pittsburgh, and are owned by Carnegie, Phipps & Co., Limited. The greater part of the iron made at these furnaces is used by the firm in their other establishments.

The two Shoenberger stacks are located on Fifteenth street, Pittsburgh. They are the property of Shoenberger, Speer & Co. Much of their output is used in the Juniata Iron and Steel Works of Shoenberger & Co., located adjacent to the furnaces. One of the furnaces is undergoing extensive repairs.

The Moorhead-McCleane Company have the Soho Furnace, the greater part of its product being consumed in their Soho Iron and Steel Works. This stack was originally built in 1872, but was rebuilt in 1888, and put in blast on November 15 of that year and continued in blast until October 14 last, when it was blown out for relining and repairs.

The average weekly output of the 24 stacks, when in operation, is 31,720 tons of 2000 pounds, or a yearly output of 1,649,440 net tons. This output includes the product of the two Edgar Thomson spiegel furnaces. In all probability the two stacks of the Monongahela Furnace Company, at McKeesport, will be in operation by January 1 of next year. Both stacks are expected to turn out about 3150 tons per week, or 167,800 tons per year. Adding this to the annual output of the 24 completed stacks gives a total of 1,817,240 tons as the the amount of pig iron that could be made in the Pittsburgh district next year, provided that no stoppages occurred for the purpose of making repairs. Making due allowance for stoppage of certain furnaces for relining and repairs, it is safe to say that the output of pig iron in the Pittsburgh district for the year 1891 will amount to 1,700,000 tons.

The people of Denver, Col., are still agitating the erection of steel works at that point. The Denver *Journal of Commerce* insists that blast furnaces must be erected at Gunison, some 200 miles distant, for the production of Bessemer pig iron, to be converted into steel, and finished into merchantable forms at Denver. There are other iron enterprises in the same general locality, which have been mooted for some time, but have not yet taken definite shape.

A new through line from Chicago to San Francisco was opened 16th inst. Two trains a day run from Denver over both the Colorado Midland and the Denver and Rio Grande from Denver to Grand Junction and thence via the Rio Grande Western to Ogden. It is claimed that the service will be the best in existence.

MECHANICAL ENGINEERS.

RICHMOND MEETING.

Last week the twenty-second meeting of the American Society of Mechanical Engineers was held at Richmond, Va. The attendance was unusually large, and it may be assumed that this was due in a great measure to the fact that in and about Richmond are many points of historical interest well worth visiting, rather than to any interest attaching to the papers to be presented, considered as a whole. Although the weather was not all that could be desired, yet the arrangements made by the local committee were so perfect, and the hospitality of the residents was so cordial, that the visitors failed to notice the continued absence of the solar luminary. The programme of the committee was so arranged as to permit an examination of all the principal industries of the city and a visit to the prominent points connected with its history, and was further so outlined as to most freely permit the enjoyment of those social features which enter so largely into the success of a meeting of this kind. The following list shows the members in attendance and their friends:

Members.

Adams, W. H., New York City.
Alberger, Louis R., New York City.
Albree, C. B., Allegheny, Pa.
Archer, E. R., Richmond, Va.
Allison, Robert, Port Carbon, Pa.
Almond, Thomas R., Brooklyn, N. Y.
Ashworth, Daniel, Pittsburgh, Pa.
Babbitt, George Rodney, Providence, R. I.
Ball, Frank H., and wife, Erie, Pa.
Bang, H. A., New York City.
Barr, William M., Philadelphia, Pa.
Barrus, George H., Boston, Mass.
Beach, C. S., Bennington, Vt.
Bennett, Frank M., Navy Department, Washington, D. C.
Bond, Geo. M., Hartford, Conn.
Bray, Charles W., Youngstown, Ohio.
Britton, J. W., Cleveland, Ohio.
Brooks, Wm. B., Richmond, Va.
Bulkley, Henry W., New York City.
Campbell, Andrew C., Waterbury, Conn.
Carr, C. A., Navy Department, Washington, D. C
Coleman, Isaiah B., Elmira, N. Y.
Cooper, John H., and wife, Philadelphia, Pa.
Cullingworth, Geo. R., New York City.
Dallett, W. P., Philadelphia, Pa.
Darling, Edwin, Pawtucket, R. I.
Dashiell, Benj. J., Jr., Baltimore, Md.
Davis, E. F. C., Richmond, Va.
Delaney, Alexander, Richmond, Va.
Denton, James E., Hoboken, N. J.
Dick, John, Meadville, Pa.
Doran, William S., New York City.
Eberhardt, F. L. H., and sister, Newark, N. J.
Fladd, Frederick C., and wife, New York City.
Foster, Chas. E., Washington, D. C.
Frost, Geo. H., New York.
Gantt, Henry L., Philadelphia, Pa.
Gobeille, Jos. Leon, Cleveland, Ohio.
Graves, Erwin, Camden, N. J.
Gray, G. A., and wife, Cincinnati, Ohio.
Greenwood, P. F., Richmond, Va.
Grimm, Paul H., and wife, Glen Cove, L. I., N. Y.
Hand, Frank Ludlam, Philadelphia, Pa.
Hand, S. Ashton, and wife, Philadelphia, Pa.
Hawkins, John T., Taunton, Mass.
Hemenway, F. F., New York City.
Henderson, Alexander, Navy Yard, Boston, Mass.
Hillard, Charles J., Pittsburgh, Pa.
Holland, John, Dover, N. H.
Holloway, J. F., and daughter, New York City.
Hunt, Charles Wallace, New York City.
Huston, Charles L., Coatesville, Pa.
Hutton, Frederick R., New York City.
Hyde, Charles E., Bath, Maine.
Jacobi, Albert W., and wife, New York City.
Jacobus, D. S., Hoboken, N. J.
Jewett, L. C., Erie, Pa.
Jones, Willis C., Cincinnati, Ohio.
Laforge, Fred'k Henry, Waterbury, Conn.
Laird, John A., St. Louis, Mo.
Lane, Harry M., Cincinnati, Ohio.
Leonard, S. H., U. S. N., Washington, D. C.
Lipps, Henry, Jr., Raleigh, N. C.
Low, Fred R., New York City.
McBride, James, wife and neice, Brooklyn, N. Y.
McElroy, Samuel, Brooklyn, N. Y.
MacFarland, Walter M., Navy Department, Washington, D. C.
McKinney, Rob't C., Hamilton, Ohio.
Mattes, William F., and wife, West Superior, Wis.
Mellin, Carl J., and wife, Richmond, Va.
Mirkil, Thomas H., Jr., and wife, Philadelphia, Pa.
Moore, D. G., and wife, Elizabeth, N. J.
Mumford, E. H., Detroit, Mich.
Nason, Carleton W., New York City.
Parker, Chas. D., Worcester, Mass.
Parks, Edward H., Providence, R. I.
Passel, George W., Cincinnati, Ohio.
Phillips, George H., Newark, N. J.
Pope, Ralph W., Elizabeth, N. J.
Raynal, Alfred H., and wife, Richmond, Va.
Reiss, George T., Hamilton, Ohio.
Redwood, I. I., Brooklyn, N. Y.
Roberts, William, Waltham, Mass.
Rogers, Winfield S., Troy, N. Y.
Rood, Vernon H., Jeanesville, Pa.
Ross, E. L., and wife, Indian Orchard, Mass.
See, Horace, and wife, New York City.
Shirrell, David, Richmond, Va.
Simpkin, William, and wife, Richmond, Va.
Skinner, F. W., New York City.
Smith, George H., and wife, Providence, R. I.
Smith, Jesse M., and wife, Detroit, Mich.
Smith, Oberlin, and wife, Bridgeton, N. J.
Smith, Scott A., Providence, R. I.
Snell, Henry I., and wife, Philadelphia, Pa.
Spaulding, H. C., and wife, Boston, Mass.
Sperry, Charles, Port Washington, N. Y.
Stillman, Francis Hill, New York City.
Stirling, Allen, New York City.
Svenson, John, Scranton, Pa.
Swasey, Ambrose, Cleveland, Ohio.
Thomson, John, and wife, New York City.
Tompkins, S., Knoxville, Tenn.
Torrey, Herbert Gray, New York City.
Tucker, Wm. B., and wife, Elizabeth, N. J.
Vanderbilt, Aaron, New York City.
Webster, John H., Boston, Mass.
Wellman, Samuel T., wife and daughter, Cleveland, Ohio.
Wheeler, F. Meriam, New York City and Montclair, N. J.
White, William, Jr., Pittsburgh, Pa.
Whitehead, George E., Providence, R. I.
Whitney, Baxter D., Winchendon, Mass.
Whitney, William M., Winchendon, Mass.
Wightman, D. A., Allegheny, Pa.
Wilcox, John F. and wife, Pittsburgh, Pa.
Wiley, William H., New York City.
Wolcott, F. P., Carteret, N. J.
Wood, W. H., Philadelphia, Pa.
Woolson, O. C., Newark, N. J.

First Session.

The first session was held Tuesday afternoon in a large hall of the Exchange Hotel, which was artistically decorated with the coats of arms of the several States and with the national colors. The address of welcome was made by the Hon. J. Taylor Ellyson, the Mayor of Richmond. He said:

It is both a duty and a pleasure for me to be here this afternoon, and I do not come to give you the formal words of greetings, but to tell you that we are glad to see you. More than a century ago George Washington expressed the hop that Richmond would some day in population, in wealth and in commercial importance gain front rank with the largest cities of the Union. That aspiration of our first President may not have been realized, but I believe our forefathers could have won such a place. But then environments were conducive to the study of the great questions of politics—questions of finance, of taxation—which some have to do. They made a mistake, probably, but if they had not there would have never been a Jefferson, a Madison, a Patrick Henry or a John Marshall. So through their broad and deep thoughts the foundation of our American Republic was established—a government for the people, by the people, and of the people.

Twenty-five years ago at Appomattox we buried our dead hopes of ever establishing an independent republic of pre-eminence. This city then lay in the very ashes of her desolation. Banking capital we had none, but in a quarter of a century we have amassed more than $5,000,000; from a population of 43,090 to double that number; from taxable values of $19,000,000 to $55,000,000; from almost no manufactories to 750, employing 20,000 hands, with an annual output of $35,000,000. When a city can give more than one-fourth of her population employment in her manufactories it can be said without boasting that she lays some claims to a manufacturing city.

We have entered upon a new era, and you come to us just as we begin to have a realization of our hopes. We need to be encouraged, and if by your presence you engraft in our public school system ideas of mechanical branches, your presence will not be only an honor, but a benefit. Teach our people along your lines what you have given your life to study. In union there is strength, and we are bound together by that indissoluble tie of citizens of the Union. The night of our adversity is over. We are living in the beauty of a rising sun. The dove eyed goddess of peace and prosperity smiles upon us, and to such a land, to such a city we invite you. United we can do many things that will elevate and promote our civilization, and we welcome you most heartily to our city. I cannot refrain from welcoming the ladies of the party and feeling that their stay in our midst will be too short. I hope that you may come again, and eyes that look sad when you depart will look brighter when you come again.

After an appropriate reply the president, Oberlin Smith, read the annual address, entitled,

The Engineer as a Scholar and a Gentleman.

In part he said:

The term "Engineer," the subject of my title, should, to my mind, include in the person described thereby all the attributes applied in the two nouns which follow. If it was always thus inclusive, then that higher professional standard, which our clients in the world outside, as well as our own interest and happiness, demand, would have been attained, and this essay would have remained unwritten. Does this aggregate mass of engineers attain to as high a professional standard as, all things considered, our modern civilization would lead us to expect? Does this body of men, who, without question, are of vastly more importance to the world than those of any one profession or trade, stand as high in the estimation of their fellow men as its important position would seem to demand, and is their craft (one which, if properly practiced, requires as much learning as do the crafts of law or medicine) thoroughly recognized as one of the learned professions?

To these queries we engineers cannot, unqualifiedly, give an affirmative reply. In the first place, we do not in all cases make high enough and absolute enough our standard of qualifications for admission to our ranks. In the second place, we do not have our forces systematically organized into a mighty army, with unbroken front, which would compel to a proper degree the admiration and respect of the non-engineering world for the profession as a whole. We have, on the contrary, been fighting too much upon the guerilla principle, and have too often shown the world brilliant dashes by individuals, unsupported by the great body of their fellow fighters. As a matter of fact, the modern engineer, if he be worthy of the name, must be a scholar as regards many important branches of knowledge. To have become this, he must possess a trained intellect and must have been through a course, whether in college, or office, or shop, in which he has fulfilled the most important condition of all

scholarship, by learing how to learn. If, however, he can by no possibility give to the schools all the time necessary for both courses, let him go though the scientific course thoroughly, remembering the masterly epigram once uttered upon an occasion like this by my talented predecessor in this chair, Professor Sweet, which, as I remember, ran thus: "'Tis better to know what wants to be done, and how to do it, than to know what has been done, and who did it."

Mr. Smith said that the embryo engineer should not take sides so strongly in favor of pure science as to ignore entirely the claims of polite literature. He thought the study of languages should be conducted in the following order: German, French, Latin, Greek, unless Spanish or Italian is needed for special reasons. The last portion of the address dealt with the "engineer as a gentleman."

Excursions and Reception.

During the day many of the members visited the large tobacco manufacturing establishments and other places within convenient reach of the hotel. In the evening the reception tendered to the society by Governor Philip McKinney, at the Gubernatorial mansion in Capitol square, was largely attended.

Wednesday Morning.—A Business Session

was held before the presentation of papers. The report of the committee of three appointed at the invitation of the Western Society of Engineers, to confer with similar committees from the Civil, Mining and Electrical societies, was received. These committees were appointed to consider the question of holding an

INTERNATIONAL CONGRESS OF ENGINEERS

in Chicago during the Columbian Exposition. The object aimed at is to provide a joint engineering headquarters for all American and foreign societies and engineers, a suitable staff to be in charge, to give information regarding the exposition and engineering works of interest outside. It was estimated that this would cost about $10,000, to be met by an assessment of $1 upon each member of all the societies.

The Engineering Congress is to be open to engineers of all nations and to continue six days. The papers are to be confined to descriptions of important recent inventions, methods of working, &c. The proceedings are to be conducted in the English language. The affair is to be managed by a permanent board of 28 members, who are to have full power to represent and act for the societies. The societies represented are the four large American societies, the Civil Engineers of Canada, and the 16 local societies in different cities. The report was accepted.

The membership of the society is as follows:

Honorary	16
Life	10
Members	1025
Associate	52
Juniors	117

The result of the election of officers was announced by the tellers as follows: President, R. W. Hunt; vice-presidents, S. W. Baldwin, J. F. Bankhurst and Alexander Gordon; treasurer, W. H. Wiley; managers, Andrew Fletcher, W. R. Warner and Coleman Sellers, Jr.

The report of the Finance Committee showed the society to be in a healthy condition. The receipts last year were $17,720, and the expenditures $17,683. The next meeting will be held at Providence in June.

The next subject considered was the printed discussion of the report of the Committee on a

Standard Method of Conducting Duty Trials of Pumping Engines,

which was presented at the Cincinnati meeting held in May last. The report proposed the use of the unit 1,000,000 heat units, in place of the common measure 100 pounds of coal, and the separate or independent testing of boilers and engine. They also suggested that the duty should always be computed from the quantity of heat supplied the whole plant. These and the other points recommended by the committee met with approval, and it was the united opinion of those who contributed to the discussion that the method proposed in the report was a step far in advance of the practice now common. The report was accepted.

The first paper presented was by W. H. Adams, of New York, on

An Engineering Problem at Richmond.

It showed what could be done to utilize the water of the James River, and how, from 25,000 to 40,000 horse-power could, at reasonable cost, be placed at the disposal of manufacturers. With the exception of about 1200 or 1500 horse-power this vast quantity of water is permitted to flow idly by the city. The question of deepening the river from the city to the Atlantic sufficiently to permit the passage of vessels of large size is also dwelt upon. The paper was illustrated by maps and drawings of the most prominent features of the proposed improvements. In part Mr. Adams said:

Without citing other examples at this time, I wish to bring to the attention of this branch of the profession the very comprehensive ideas of an enginaer of Richmond, Va., whose efficient general charge of the James River improvements, and his many notable engineering successes, have sufficiently introduced him to our society.

C. P. E. Burgwyn [assistant engineer in local charge of the improvement of the James River] has grasped the idea, in its broadest sense, that Richmond should be made an inland seaport town with facilities for handling the growing trade of the great interior country south, and with a basis for expansion only offered when cheap and almost unlimited power can be added to a naturally advantageous location for comparatively small expenditures. His arguments commence from the self-evident fact that nowhere in the Middle South within so limited an area can so many advantages be brought to bear toward the building up of an industrial center—the natural depot for interchange of all commodities between the manufacturing and agricultural interior and the coast line cities of the world.

Primarily, the projector is in favor of utilizing the enormous water shed of the James River and its one natural outlet at Richmond, Va., to its fullest extent. The physical conditions are such that impounding reservoirs for storage of the excessive rainfalls of the contiguous region—say, a drainage area of 40 x 150 miles, equal to 6000 square miles of territory—are not only practicable from the nature of the bottom lands of the upper country, but inexpensive (considering the advantages to be gained) as compared with public improvements of like nature in other parts of the world. The measured discharge of the James River, taken at Richmond under normal conditions, varies from 2000 cubic feet per second to 10,000 cubic feet per second—a fair average fall of, say, 4000 cubic feet per second. Freshets are of a character difficult to understand without close study of the topography of the country about Richmond, but at such periods the estimated discharge of water past the city of Richmond is as high as 200,000 cubic feet per second. To fully grasp the economic value of such a volume of water as is here obtainable, if evenly distributed throughout the season and made use of by industrial cities along the river, it should be understood that within 13 miles from the city (Richmond being at the head of navigation and on tidewater) there is a fall of over 115 feet, and from tidewater to the gap in the Alleghanies, from which the James River takes its source, the elevation is about 585 feet. By any reasonable system of impounding reservoirs within a distance of 50 miles of the city there could be guaranteed at least 4000 cubic feet per second during summer months, and under a head of 115 feet this would average, say, 40,000 horse-power. To enable the reader to compare this measured value with well known sections where the question has been answered by the expenditure of millions of money to secure the advantages of power of this character, the following table of the horse power for the summer months alone has been compiled:

City.	Horse-power.
James River at Richmond, Va., with reservoirs	40,000
James River at Richmond, Va., at present	25,000
Holyoke, Mass.	12,260
Manchester, N. H.	12,000
Lowell, Mass.	11,845
Lewiston, Maine	11,000
Lawrence, Mass	10,902
Cohoes, N. Y.	6,556

A fair valuation of the average horse-power per year is stated as $28, and it follows, therefore, that Richmond could easily control an annual valuation for her contiguous water privileges of over $1,000,000—a dormant valuation to a large extent at present, but one so clearly within the scope of engineering talent and science and so essential to the future grand development of the city, that only the means need now be secured to insure the successful inauguration of plans and operations already outlined or completed.

Of this distance of 127 miles by river, as stated, from Richmond to the Capes, 82 per cent. thereof has the requisite depth of 22 feet at mean low tide, generally very much more, and with no bar at the mouth of the river, as there is at the mouth of the Mississippi, the Danube and the Nile. There is, however, in the magnificent harbor of Hampton Roads an entrance which ranks the James River with the great harbors of the world, like the Amazon. The river itself is one continuous harbor reaching into the country 98 miles, the upper 50 miles being fresh water.

This whole distance of 98 miles consists of long, deep, capacious pools, separated by shoals, which are now being systematically worked upon to produce a uniform depth of 22 feet at low water.

With such a depth Richmond can compete with any of the Northern cities, as

she will soon be 67 miles nearer the sea than Baltimore and but 17 miles further than Philadelphia.

I cannot do better than quote freely from the able articles which have been written by Mr. Burgwyn, on the special subject of the inland basin to be located on the west bank of the James River at Richmond.

"There are few localities in the world where the water facilities or frontage are better. While the present official plan is to obtain 22 feet at low water, it is quite practical, within reasonable limits as to cost, to obtain a channel 30 feet deep at low water from the sea as far as Drewry's Bluff. Arriving at Drewry's Bluff, the project is to have lock gates, and a basin and canal fed by water from the James River. As a series of basins could be constructed at a minimum cost by the placing of the excavated materials upon the levees between them and the river, and as the level of the water in the canal at Manchester is just about what is needed for the elevation of the water in the grand basins, above low tide in the river, it follows that the construction of such basins are feasible, are economical, and are possessed of many advantages. Thus the water discharged from the opening of the locks can be utilized in charging hydraulic accumulators, storage batteries, and for other purposes. The level of the water in the basin being higher than the river, dry docks can be constructed which will empty themselves by gravity, while the water in running out can be utilized for many purposes. The water in the high level basins will also afford a cheap power for manufacturing purposes. Around such basins elevators can be constructed with the necessary trackage. Cotton compresses, coal pockets, &c., can also be provided for.

One of these basins contains about 400 acres of land. The dockage or wharf length is about 9 miles, and it contains eight dry docks, which can empty themselves by gravity. Two of these dry docks are sufficiently large to take in any vessel, except, perhaps, one of the size of the Great Eastern, and the remaining six are of smaller, graduated sizes. Each dry dock can be entered by itself and has its own railroad tracks. It is estimated that the cost of the entrance lock and the eight dry docks would amount to $3,245,000, the excavation of the interior basin would amount to about $750,000, and the interior wharfage line to about $250,000, and the outside wharf line $430,000. There are about 26 miles of track, which, including the switches, &c., would cost about $128,000. The buildings, &c., would be a cost determined upon the machinery required. It is to be observed, however, that almost all of this construction could be done *seriatim*, and therefore be developed as the commerce or necessity requires. The total acreage in these three basins would amount to over 1500 acres, and the wharfage frontage to about 35 miles.

In conclusion it need only be stated that if we enlarge the scope of the possible utilization of the water power of the rivers within 20 miles of the City of Richmond, it will be found that this single district compares favorably in water frontage and power with many of the Northern States in their entirety, and it will strike engineers as peculiarly favorable that so certain a future, so grand a possibility as the unity of all interests, which shall eventually join to make up an industrial center at this locality, will be planned and executed from original premises, and not hampered by ill-advised attempts of a former generation.

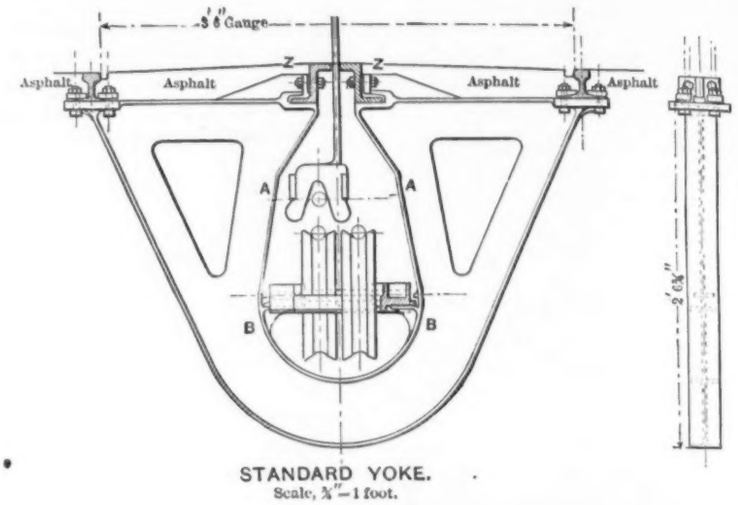
Light Cable Road Construction,

was the title of a paper by Frank Van Vleck, of Los Angeles, Cal., in which he describes the single track cable system now in operation in that city. We make the following abstract:

PERMANENT WAY.

The backbone and foundation of a cable system is the road substructure, the form of the iron yoke binding all the rails and shaping the conduit, and the concrete foundation. The influence of a fine California climate had not a small share in the determination of the iron which forms the yoke, for in this part of California frost in the ground is a contingency which engineers never consider.

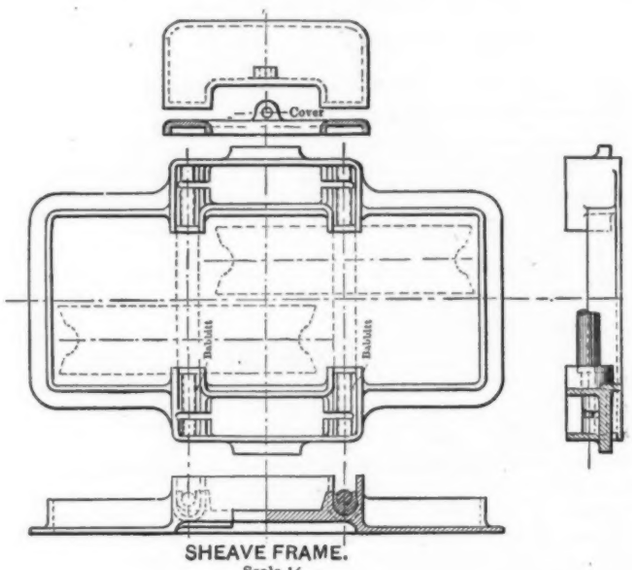
This yoke is shown in Fig. 1. The positions of track rails and slot rails are as shown. The form of the central conduit was determined by these considerations. Two cables must traverse the entire length of the conduit. They must not be so close together as to chafe each other in oscillating sideways, nor so close as to touch the rims of the sheaves carrying the opposite cable; nor, again, must they be so far apart as to swing against the concrete sides of the conduit, or so close to those sides as to render difficult the passage of the grip, which must embrace the cable from the sides. The sizes and position of the sheaves carrying the cable also had their claims. Drainage had to be provided below all, in order to allow free passage of water and dirt below both cables and sheaves. Finally, the cross section of the grip must determine the main form of the conduit, for this grip must pass every point of the road, and must be capable of taking the rope only at the proper level, and taking the correct moving cable according to the position in which the car is headed.



STANDARD YOKE.
Scale, ½"—1 foot.

Fig. 1.

The form of conduit thus derived will be observed to depart from the usual practice of double track roads, in that the grip necessitates an angle in the side of the conduit, where ordinarily is but a straight side, as seen at A, Fig 1. In the matter of the gauge between rails the directors of the road simply consulted expediency, nor did they hunt up any absurd regulations, if such existed, requiring street lines to conform to some old rustic's idea that street tramways should always be made to conform to the supposed gauge of all the local wagons and carriages. Therefore this San Diego road, following the example of numerous other cable systems, promptly decided for the 3 feet 6-inch gauge. From the figure it will be seen that the tendency of the yoke to close is resisted mainly by the metal in the cross section at the bottom of the conduit; this therefore was given as much iron as could be conviently done in a yoke of so light a weight—150 pounds.

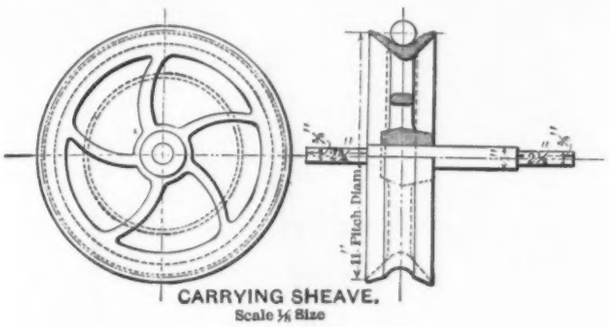


SHEAVE FRAME.
Scale ½

Fig. 2.

The rail used is of 25 pounds section, and, although light for cable road service, yet, as large quantities were left as an heirloom by the former electric road, it was decided to use it for whatever might be its term of life, and then, if the traffic so demanded, lay a heavier rail.

The slot rail Z, Fig. 1 is a special section rolled for this road, the desire here being to secure one of the lightest possible forms, one which would be inexpensive to adjust, and one which should avoid what with many other roads has been inevitable—the use of paving plates. What are known in cable construction as paving plates are strips of cast or wrought iron extending from yoke to yoke, near the slot rail, to prevent the concrete from being pushed from its sharp angle into the conduit or tunnel.



CARRYING SHEAVE.
Scale ½ Size

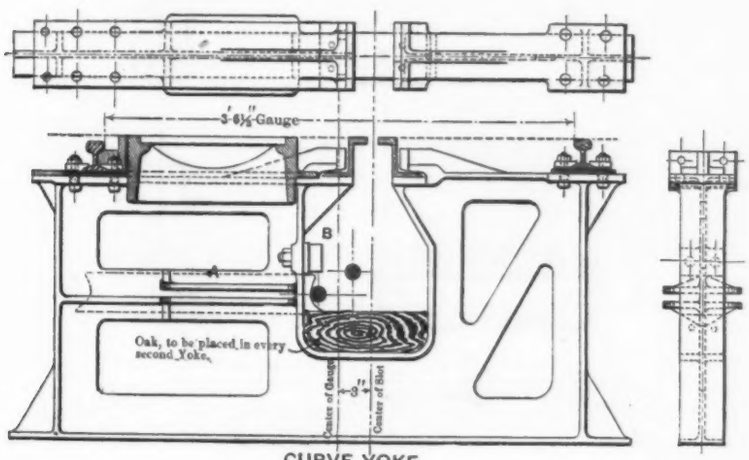
Fig. 3.

The external bounding of the concrete cross section follows the outline of the yoke, except that at the bottom the concrete is run 3 inches below the yoke for the purpose of forming a better foundation, and a bond between the contiguous blocks of concrete between yokes. This concrete was formed with the proportions usual to many roads, three parts sand, six of broken stone and one part of best imported English Portland cement. Yokes were spaced at 4 feet center to center, and at every tenth yoke was placed a "pulley yoke," this being such a one as in shown in Fig. 1. The plain yokes do not have cast on their conduit curve the two brackets shown at B B. In other single track cable systems it has heretofore been the custom to place a pulley or rope sheave on one yoke, and on the next yoke another pulley for carrying the opposite going cable. This requires two yokes to be prepared for the reception of the pulley boxes, and then on each yoke two boxes are to be attached, usually by bolting, and brought into proper alignment. To make each of these two pulleys with their four boxes accessible from the street required either two manholes through the paving or one long and expensive manhole spanning from yoke to yoke.

By the system here employed for the first, both pulley shafts are brought close together, and can therefore be carried in a single frame—see Fig. 2. This frame passes around and carries both pulleys. Having them both in the same frame, whenever the frame is adjusted to proper position then are all four bearings in correct line. This frame is simply passed in over the brackets attached to the yokes until it comes to its mid position, when a depression in the frame drops over the bracket; if, then, a thin wedge shaped piece is driven in on each side, the frame is rigidly held to place and can neither back out nor move forward.

The small carrying sheaves, Fig. 3, are 10 inches in diameter, with a 3-inch face, and are mounted on cold rolled steel shafts about 12 inches long. The sheaves are of cast iron throughout.

The manhole through the paving whereby the oiler has the opportunity to perform his duties is perhaps smaller in this road than any other. The size is only 12 x 14 inches, yet a small man or youth can pass through it and along the conduit of the road.



CURVE YOKE.
Scale, ¾" = 1 foot.

Fig. 4.

The line of the road in two places crosses deep gullies, in one of which the roadbed is some 70 feet above the bottom of the ravine. In both of these cases high wooden bridges have been built. As it was possible for vehicle traffic to come upon these bridges, it was decided not to leave the space between rails open, and accordingly the problem was presented to carry the slot rails in the centre and to carry any load which might come between rails, and to preserve accurately the guage distances between all rails; and finally to have the yoke so formed that it might be afterward filled with concrete should the ravine be filled and graded.

This yoke was given a little more metal through the central section in order to resist closure should heavy loads come upon the slot rails, and in this case it was the more desirable, as no concrete was here used to bind or to strengthen the yokes.

Curves are bad enough for the double track systems, but with a single track the difficulties increase, for how shall these two cables, each moving in opposite directions, be taken around the horizontal curve pulleys? For neither can both ropes be carried on the same sheave, for no wheel revolves in two directions at once, nor can alternate pulleys be used for either rope. Practically there are but two methods for accomplishing this feat. The method first made use of was to carry one rope at a higher level than the other, and have it pass over curve pulleys above the pulleys carrying the opposite moving rope. This required that the gripman, when having the lower rope, must invariably release his rope from the grip, and then let his car "float" over the curve either by momentum or gravity. Usually these curves were located on a grade in order to specially make use of gravity to carry the car around. In these cases, when the gripman did not release and drop his rope, the grip from its construction carried the rope into the wrong pulleys and trouble ensued at once. To add to the difficulties, after passing the curve provision must also be made for picking the rope up, for grips as usually constructed have not the power to go down after the cable. The other solution of the problem is to separate the ropes and to construct the curves as double tracks. This was necessary in the road described, as no curve was on an incline which could be depended upon to float the car over by gravity. As a single track road requires a certain number of passing places or turnouts, these double track curves were so arranged on the line as to serve this same purpose of passing places.

The form of yokes for the curves was designed with many differences from the yoke required for the straight, as the curve demands features of strength which the other need not possess. The form of curve yoke is shown in Fig. 4. The main outline is made in the form of a square, for the purpose of strength, and for holding a greater body of concrete than such a depth of yoke would if made in the V form. The conduit, it will be noticed, is shallower than the straight yoke; this is due to the fact that each alternate curve yoke is fitted with a wooden block whose top surface is but a short distance from the cable. As this impedes the flow of water through the conduit, it was decided to form the channel way for water under the frames for the pulleys, where it might have unobstructed flow, and which space of necessity is left unfilled with concrete for the action of the curve pulley. The yokes as thus constructed are strong, and when concreted up form a rigid construction capable of withstanding any of the strains to which curves may be subjected. The frame which carries the pulley is attached between two brackets cast on the yoke at A. The grip is prevented from being drawn against the pulleys by the grip guard at B, against which the grip slides in its entire passage about the curve. The grip, previous to its entering the curve, is deflected 3 inches to the outer side by a deflection made in the track slot to that amount. This permits the cable to run directly from the tangent to the first curve pulley in its own proper line, while the grip by this means is carried to one side enough to clear the pulleys, and the strain imposed upon the cable by this bending is taken by the grip-guard mentioned.

The curve pulleys are carried between each yoke by a special frame of wrought

iron. These pulleys are of cast iron, with chilled rims, the width of rim being but 3½ inches. The diameter of the wheel is 22½ inches on the pitch circle, thus striving to attain what the present best cable practice deems most desirable, "as large curve pulleys as possible, and spaced as closely as yokes permit." The distance from pulley center to pulley center is about 3 feet.

THE GRIP.

Perhaps the one thing about which the whole design of a cable road hinges, from roadway to rolling stock, from curves to turnouts, is the form of the grip. The grip early decided upon was a modification of the "bottom grip," now in most general use in San Francisco.

It was found on investigation that these San Francisco bottom grips had never been constructed on the side for the purpose of taking the cable, as would be necessary in single track work. Accordingly the writer designed the form of grip shown in Fig. 5, which is possibly the first attempt to construct this grip as a side and bottom grip.

Fig. 5 shows the general view, and Fig. 6 a cross section through the grip jaws. The shank plate A below the slot rail passes through the upper part of the grip box B and carries the hinge piece C. This hinge piece has hinged to it the two jaws J J; these jaws constitute the vise for gripping the cable. The special surface which grasps the cable is an inserted piece, usually of cast steel, dovetailed in the inner side of each jaw. Softer metals are often employed for this purpose, but as the wear is so rapid and the renewals so frequent the expense counts up to such an item that it is considered as good practice to put in hardened jaws and assume the possibility of a trifling greater wear upon the cable. The pressure upon the jaws causing them to tighten upon the cable is produced by pulling upward on the outer side of the jaw a steel roller carried in the bottom of the grip box. This grip box is fastened to the two side shanks of the grip, and when the gripman pulls up his lever to the position for tightening this movement causes the two side grip shanks to be drawn upward, thus by means of the rollers causing the closure of the jaws upon the cable.

To those of the East it may be well to mention that the cars are equipped entirely with trucks, as it is found a much larger and more convenient car can be built than is possible for one which is simply to ride on a comparatively inflexible wheel base of four wheels. As the wheel base of the trucks is only 4 feet, it is seen that curves of extremely small radii can be turned with ease.

THE POWER PLANT.

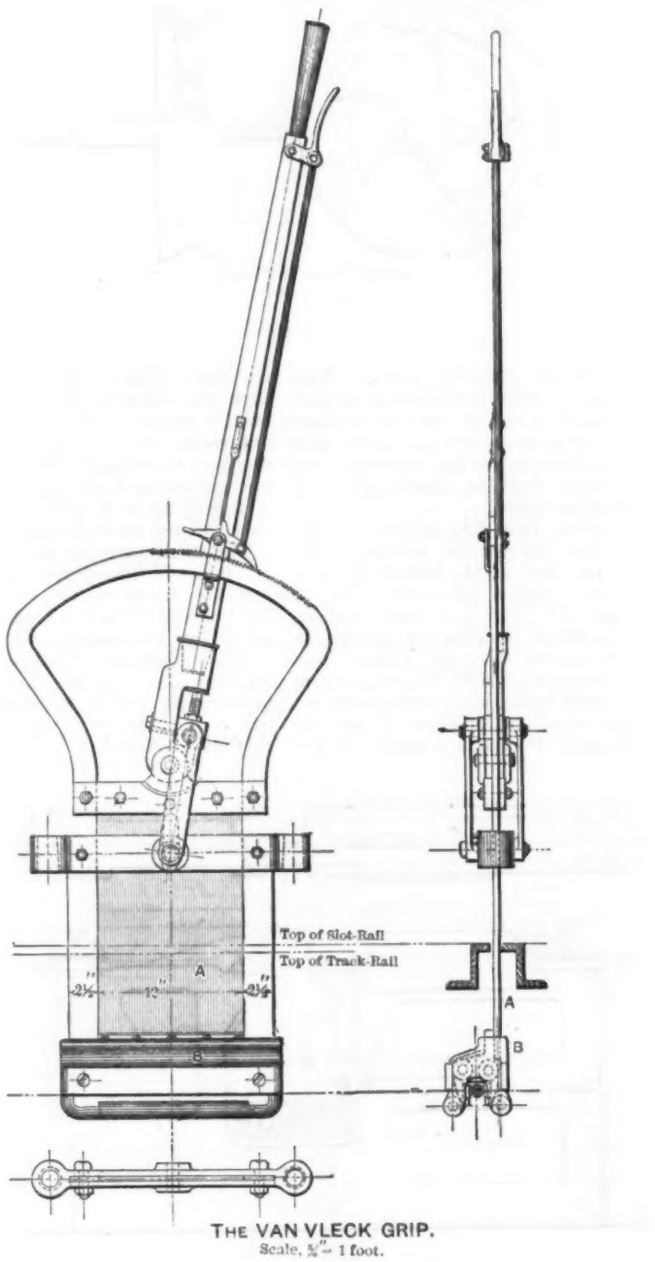
The engines contracted for were of the Corliss type, one being 18 x 42 and the other 22 x 42. Compound engines would have been considered were it not for the fact that the expense of the engine plant was already heavy, due to the necessity of two separate engines, where but one was in use with the other in reserve.

The steam plant of the power station consists of four steel shell boilers, 62-inch x 15 feet, arranged in batteries of two. Tubes are 4 inches in diameter. The smoke flue is taken over the tops of the boilers to the rear wall of the boiler room, and thence to the stack, which is located on a higher level in the car-yard of the power house. The boilers are capable of furnishing steam at 100 pounds, and not more than two or three boilers are anticipated to be in use at the same time, thus affording a reserve for alternation in case of the breakdown of any one of them.

The disposition of engines is such that either one can be coupled to the intermediate transmission shaft. This intermediate shaft is shown at A in Fig. 7. This figure also shows the general skeleton on which all the details of the winding machinery have been built. The belting from the engine shaft to the main winding drum is effected by means of cotton ropes. This system of power transmission, although so much despised by some engineers, yet for cable work offers decided advantages. Foremost of all, it is noiseless, which is more than can be said of most cable plants furnished with cog-wheel gearing. Cotton rope transmission also has the one greater feature of ease in renewing any part or parts without disturbing the action of the remainder. Any rope can be cut out, or a fresh one turned in, while the machinery is in motion.

The diameter of the cotton rope drum on the engine shaft is 6 feet 3 inches. The large driven drum is 25 feet in diameter, thus reducing the engine revolutions four times. The shaft B, on which the 25-foot drum is carried, is prolonged at each side beyond its bearings, and carries a 12-foot diameter cable sheave on one end and a 16-foot diameter cable sheave on the other. Midway between the engine shaft and the large drum shaft is placed the shaft C, carrying the cable "idlers."

The method of pulling the cables can now be seen. The line marked "city cable" is at the right hand of the drawing and its motion is in the direction indicated by the arrow. This cable is drawn up on the cable sheave in its first groove, the cable passes but half a revolution about this sheave and is carried off at the top to the idler sheave on shaft C. The center line of the groove in the idler wheel is half the groove pitch behind the groove in the other sheave, as will be seen in a following drawing. After passing half a revolution around the idler it again passes to the other sheave. This constitutes one wrap, and on roads performing ordinary service from three to four wraps are considered necessary. After the last wrap the cable passes to the tension carriage, and thence is returned to the road. The city cable, it will be noticed, is wound about sheaves which are 12 feet in diameter, the speed of the engines being so proportioned as to give this cable the uniform speed of 8 miles per hour. The "suburban cable" on the other side of the foundation passes to sheaves on the same shafts which are 16 feet in diameter. Thus with the same shaft and engine speed it will be observed that a speed of



THE VAN VLECK GRIP.
Scale, ½" = 1 foot.

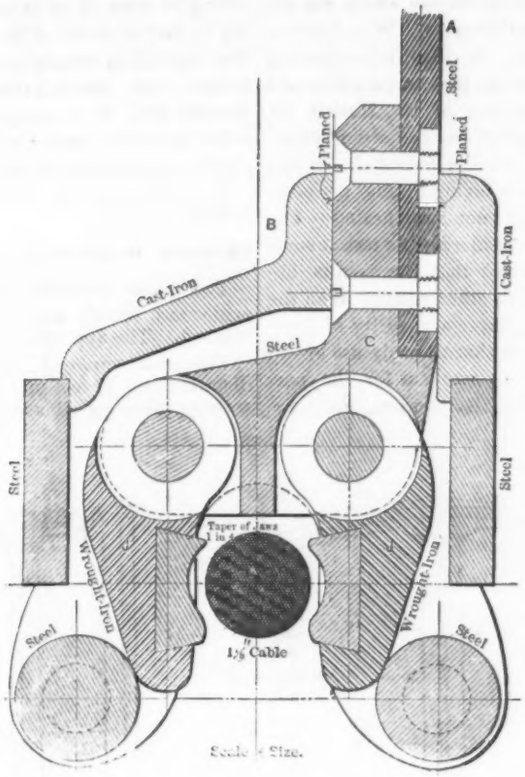
Fig. 5.

12 miles per hour is given to the cable. As horse cars average but 6 to 7 miles per hour this 12 mile speed is far better rapid transit.

Some of the details of these large wheels and forms of grooves may not be uninteresting. The method of binding up the large 25-foot drum is shown in Fig 8. This drum is composed of ten separate segments and ten spokes bolted together. A surprising amount of metal was saved without sensible decrease of strength by simply grooving out the backs of the segments to correspond to the ridges formed by the rope grooves on the front. The form and angle of the cotton rope grooves will be seen on reference to Fig. 9. The form of grooves carrying the cable or the grooves on which is thrust the entire work of pulling the cable is represented in Fig. 10. The driving sheave is shown with five grooves and the driven sheave with four. This difference is necessitated by the driving sheave having the cable touch it in the last groove before the cable passes to the tension carriage. It will also be observed that both driving and driven cable sheaves are provided with larger and deeper grooves for carrying two cotton ropes. The driven sheave has here been termed an idler, but, properly speaking, it is not an idler, and to relieve it from its reputation of idleness provision has been made by means of these grooves and cotton rope transmission for it to do its share of driving effort. Two cotton ropes pass from the driving sheave directly to the driven sheave, and as the latter is ¼ inch smaller than the former, it causes in the cotton rope a tendency to hurry the driven sheave more than it would do if the diameters were equal; and as the diameters of the cable grooves are equal this tendency then amounts to a pull upon the cable, hence the idler is caused to perform a certain appreciable work. This ingenious method of utilizing the idler for work was first introduced in the Los Angeles cable railroad systems, and was originated by W. R. Eckart, of San Francisco.

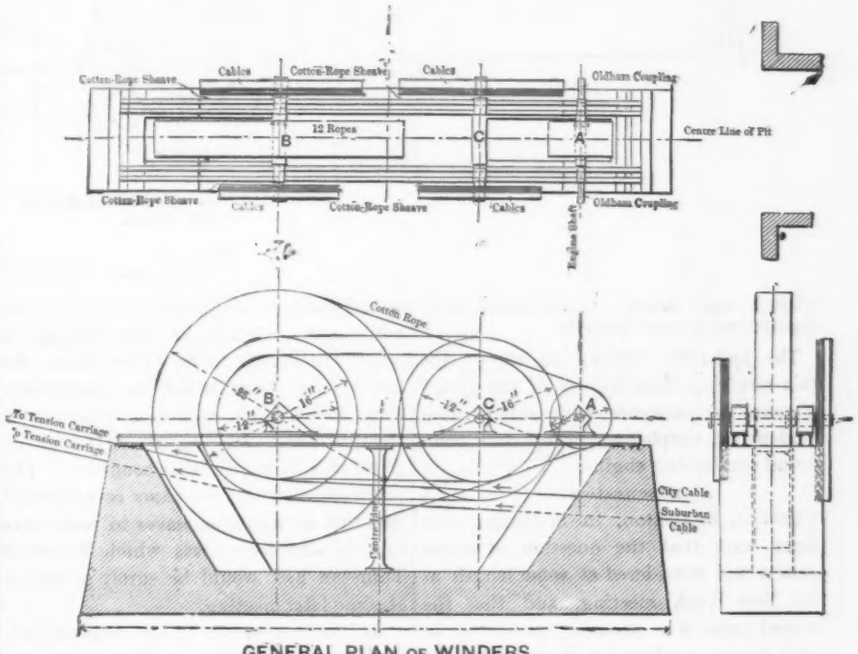
The tension carriages of the devices for taking the slack from the cable may also present some novel features. These tension carriages may be classed in three groups. The first and oldest form, and the one now considered most unsatisfactory, was an arrangement whereby the tension carriage, carrying its own or added weight, hung in a loop of the cable, so that its movements take place in an inclined plane. The second class of tension devices consists of the carriage placed in the loop, but traveling on a horizontal tramway, the weight, hanging in a pit, being attached to the carriage by cables or chains, the great disadvantage of both of these systems being that should the cable suddenly give way (which is a rare but still possible occurrence), the weight and carriage instantly rush to the end of their respective ways to their own demolition.

The third class of tension carriage consists of a double carriage, one moving upon the other. The upper carriage holds the cable sheave. The weight is attached by chain to this carriage, but this chain passes over pulleys on the under carriage. The weight is therefore carried by the carriages themselves. Usually this weight hangs suspended under the carriage, while the carriage itself travels along a runway or trestle. In the San Diego pattern, which is adapted from the last form, the weight hangs within the under carriage; thus the tension carriageway need only be an ordinary track laid upon the surface of the floor or ground.



CROSS SECTION THROUGH GRIP JAWS.

Fig. 6.



GENERAL PLAN OF WINDERS.
Scale, 1/10" = 1 foot.

Fig. 7.

Authorities on the Steam Jacket: Facts and Current Opinion,

was the title of a paper by Prof. R. H. Thurston. The discussion of the steam jacket at the New York meeting and an extended correspondence revealed such unexpected differences of opinion as to the value of the jacket and its relative efficiency under different circumstances in ordinary practice that the author was led to make a somewhat extended examination of the authorities and to obtain from those who have had experience their ideas of the benefit to be derived from its application. The data collected extends from the time of Watt to the present, the great majority of the authorities quoted showing the benefit to be derived from the use of the jacket. The paper states that the history of the steam jacket dates back to the time of Watt, and was one of his very earliest contrivances for improving the efficiency of the engine. After he had discovered that the wastes of heat and steam in the older Newcomer engine were mainly due to the introduction of the steam into the chilled interior of a cylinder which, the moment before, had been

exposed to the action of the cold water used in condensation, he proposed to keep the cylinder "always as hot as the steam which enters it." This invention is described in the patent, granted 1769. Regarding what follows, Professor Thurston says:

The following quotations and abstracts of papers, collected by the writer, represent but a fraction of the material which he has gathered in the course of a very extensive correspondence and research among files of periodicals and transactions of societies. They will, however, give a fair idea of the character of evidence at present available on this subject. Should time and opportunity permit, a later paper may be given in which the philosophy of the subject may be more systematically discussed. The appendix contains an enormously valuable collection of data reported by Mr. Donkin to a committee of the British Institution of Mechanical Engineers, appointed especially to study this subject, and which is published most opportunely for our purpose.

The appendix referred to shows the gain resulting from the use of the jacket in many experiments with simple noncondensing, simple condensing and compound condensing engines.

Discussion.

Prof. J. E. Denton, in discussing this paper, said that the question of steam jackets was considered at some length at the New York meeting, and that the present paper was probably presented in reply to the position he then took concerning the actual value of the steam jacket. He had been advised to "brush up" a little on the question. He had done it. He had been written to and counseled to take the part of devil's advocate. He said that the paper presented a list of authorities on the steam jacket which was admirable and which was just what was needed. The paper states that Watt was an authority on the steam jacket. Professor Denton met this by saying that Watt never used expansion, although he invented it. He then explained the Cornish engine which was the outcome of Watt's engine. Wire drawing gives dry steam. In 1840 wire drawing did part of it, steam jackets part of it and quick admission part of it. Rankin believed in the jacket, but the steam entering the jacket was superheated. Hirn's great test shows a saving of 23½ per cent. with the jacket not superheated. The professor then considered this test at some length and showed that the results obtained were due to other reasons than the jacket. The engineer of the City of Paris had informed him that the only use of the steam jacket in his case was for the purpose of warming his cylinders, since he would not dare to introduce steam into them while cold. While he was willing to admit the benefit to be derived from the use of the steam jacket in long stroke, slow speed, high expansion engines, he thought there was no benefit to be derived from it in any other condition. The professor criticised the paper severely, and said that he would endeavor to make sure that the additional data which Professor Thurston had would be surely presented at some later meeting.

At the conclusion of his remarks Mr. Holloway, who was in the chair, remarked that it was to be regretted that Professor Thurston was not present, since there was a fine opportunity presented to "warm somebody's jacket."

In continuing the discussion Scott A. Smith said that about three years since he "gave very searching thought" to the question of steam jacketing, in order to satisfy his own mind and to make a simple statement of the reason for its value. He further said that Mr. Corliss had found by carefully conducted experiments that the use of the jacket resulted in a saving of from 7½ to 10 per cent., according to the variations of the point of cut off. His concluding remark was "it is to be regretted that, through the limitations of thought and of language, the value of steam jacketing cannot be fitly, fully and clearly expressed in words."

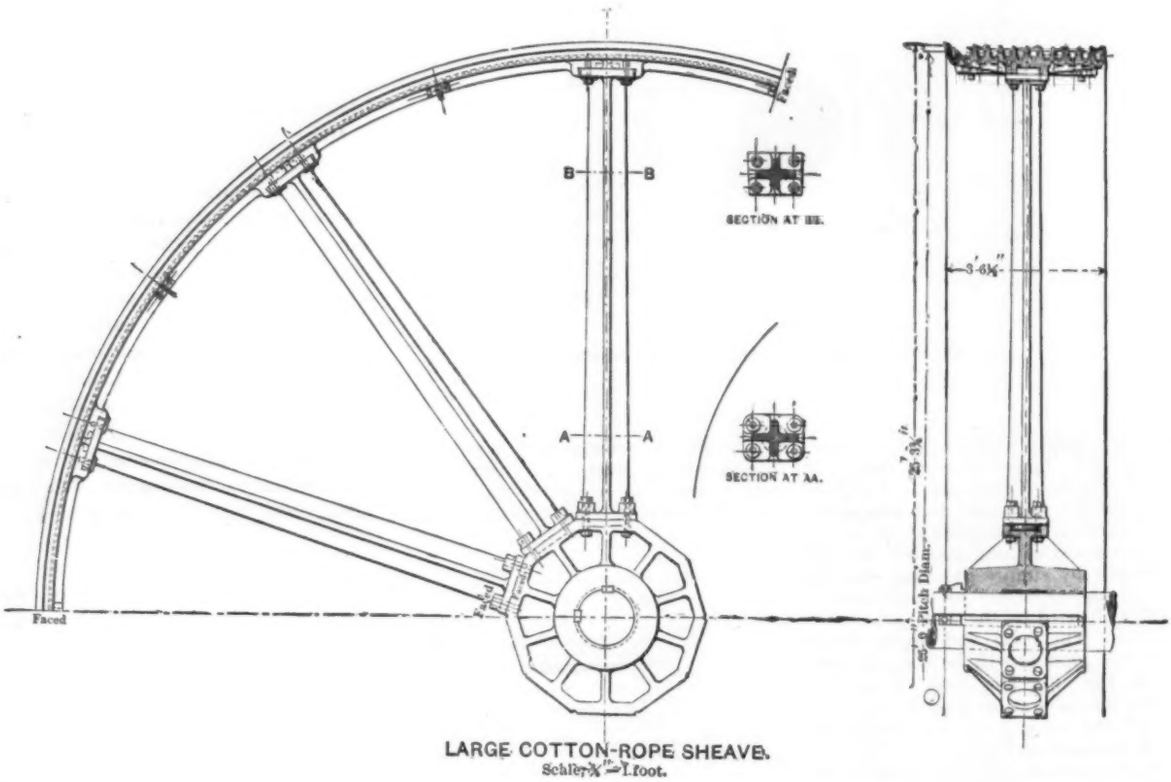
A second paper by Professor Thurston was on

Chimney Draft—Facts and Theories.

The paper describes an investigation made last spring and the results then reached. The apparatus was as follows:

The stack employed was 20 inches in diameter and 32 feet in hight, circular in section, composed of a single thickness of boiler plate, lined throughout with fire brick. According to the usual computations, it should be sufficient to produce a draft of about 0.3 inch of water and a rate of combustion of not far from 12 pounds of good anthracite coal on the square foot of a grate eight times its own area each hour. A grate was constructed especially for this work, however, and to eliminate all uncertainty as to resistances, was built so as to be placed directly at the foot of the stack and to be removable at pleasure. The instruments employed were standardized Bulkley pyrometers in the stack, an accurate anemometer to measure the rate of flow of the air into the fire, and a very finely divided water pressure guage, made for the writer by the Hartford Steam Boiler Insurance Company. These instruments were standardized before and after use. For exceptionally high temperatures a Pouillet pyrometer was employed.

Preliminary tests were made to discover any conditions which might lead to uncertainty or embarrassment, and the work



LARGE COTTON-ROPE SHEAVE.
Scale ½" = 1 foot.

Fig. 8.

was only begun formally when it was found practicable to eliminate such obstacles to success. Heavy fires of coke were first used, the purpose being to secure, if possible, a uniform and manageable variation of chimney temperatures. It was found that lighter fires and the best of coke were requisite. It was found impracticable to keep uniform resistances of fuel bed by attempting to fire regularly, as a very slight variation in the condition of the fire made an enormous difference in the resistance to flow of the gases passing through it and the stack. It was as difficult to secure perfect uniformity of thickness of a burning fire as of condition of the fire itself. It was finally discovered that the best method of securing uniform resistance was to allow a heavy fire to burn completely out, leaving a bed of ash, which remains unchanged, substantially, throughout the period of temperature and air measurement, and gives invariable resistance during that time. The temperatures of the stack ran down rather rapidly at first, then more slowly after the fire had burned out, and always so steadily and smoothly that it was practicable to secure perfectly satisfactory measurements. In some instances, however, another system was tried. The fire was entirely removed and the resistance was adjusted and kept constant by applying a closed box at the base of the stack, openings in which permitted the desired quantity of air to draw through, the only variable being then, as required, the falling temperature of the stack. Where the fire was used or the ash bed employed the condition of the grate could be examined by an opening in the side of the stack.

During each test five minute runs were made with the anemometer while taking the temperature and water pressure readings, and observations were made at frequent intervals. Ordinarily the temperature in the stack fell rapidly to 500° F., and then it required a number of hours to bring it down to 100°.

The data obtained are tabulated, and are given in an appendix to the paper.

The essential facts are here given, however, quite as well. These are: 1, that the resistances and pressure differences in the chimney are lower than those computed from the temperature variations by the usual method; 2, that the delivery is greater, with a given resistance, than is thus computed; 3, that the temperature of maximum delivery is a variable quantity; 4, that the chimney temperature of maximum delivery is far above that ordinarily taken as that of good practice in the operation of the steam boiler.

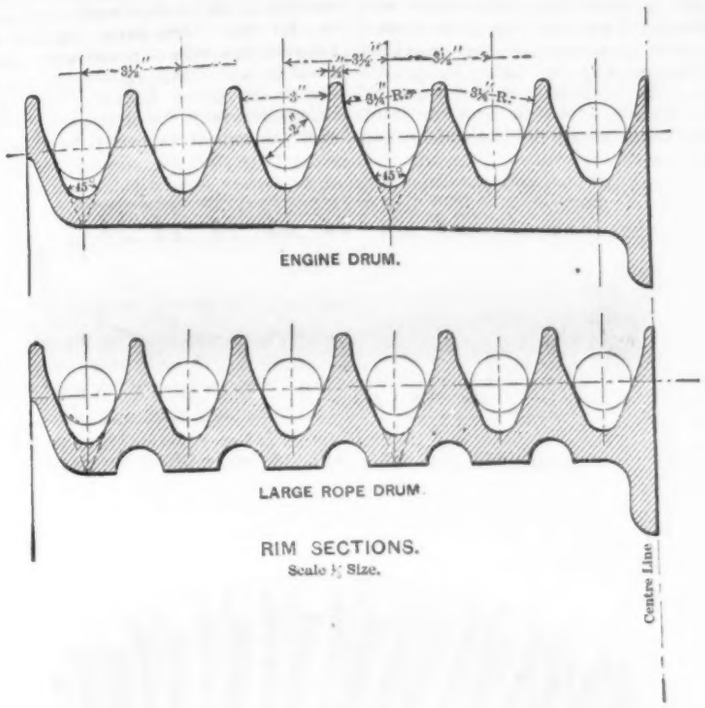


Fig. 9.

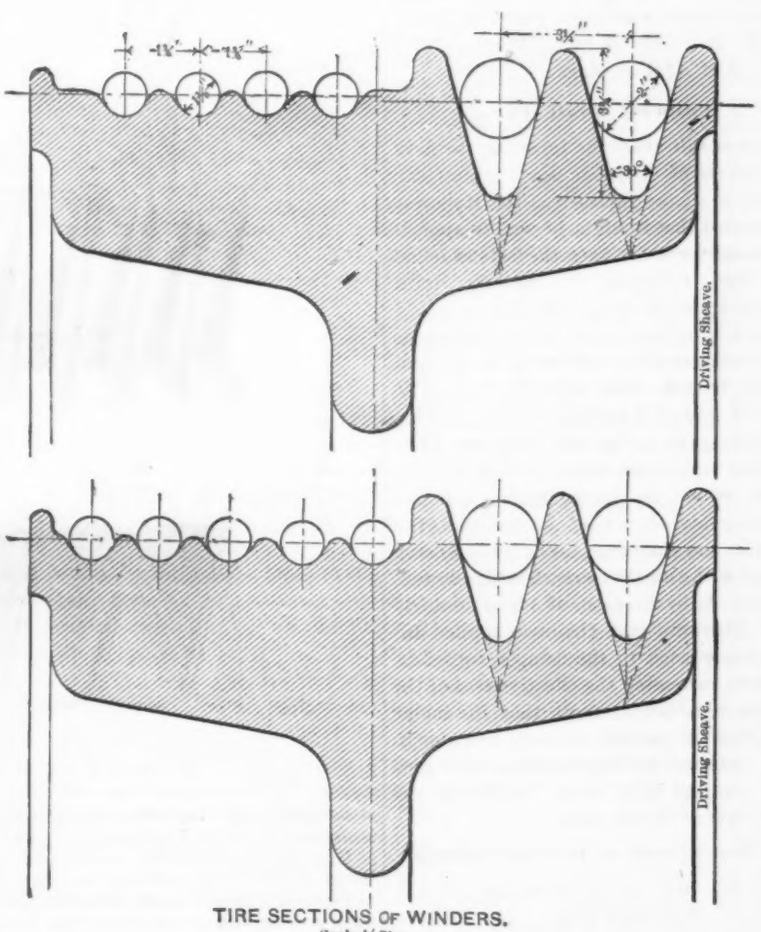


Fig. 10.

Discussion.

Prof. J. B. Webb said, in part: Had this paper been confined to the opening paragraph no adverse criticism would have been necessary, but the utter failure of the remainder to justify the expectations there raised calls for a protest.

In this paragraph we are told that it is "time to ascertain by direct experiment whether the premises on which the mathematical treatment is based are those of practice," and that the writer planned an investigation to settle whether there is a temperature of maximum delivery within the range of temperature of chimneys as attached to the steam boiler, and that the work was all done by students, who contributed many ingenious devices for eliminating obstacles, &c.

We, therefore, naturally expect the paper of 35 pages to contribute a complete description of a well planned apparatus, including the ingenious devices, instead of which but one paragraph is devoted to it, and we are told simply the size, shape and material of the stack, and that it had under it a specially constructed removable grate, not otherwise described. No ingenious device is mentioned unless it be this grate; the removability of which was certainly a highly ingenious device for getting rid of it and the fire with all the trouble of regulating and measuring it. This grate constructed "to eliminate all uncertainty as to resistance" seems not to have done so, for we read that uniform resistance was secured by allowing the "fire to burn completely out, leaving a bed of ash," or by entirely removing the fire and closing the bottom of the stack with a perforated cover. Not only, then, was there no steam boiler, but no fire, only a heavy bed of ashes in the apparatus,

which was to "give a correct solution of the problem from the standpoint of the engineer"—not of the mathematician, who is popularly supposed to be guilty of such vagaries, but, of all men, the engineer! The apparatus and its manner of use were then about as far removed from practical conditions as possible. As to the unchangeableness of the bed of ashes and the reliability of most other conditions influencing the data, there is no room for a wide difference of opinion from that of the paper.

As to the data themselves, they are so inexcusably incomplete as to justify little confidence in their accuracy. No data are given as to the methods of standardizing and using the pyrometers and anemometer, nor as to the opening supplying the air. What the temperature of the stack means we cannot even guess, except that it is probably the indication of the pyrometer, which might have been placed in the stack in various ways and at various places with scarcely any chance of getting the temperature of the hot air as distinguished from that of the walls of the stack. Moreover, as the walls of the stack were the main reservoir of heat, the air could not have maintained a constant temperature during its half minute's passage through the stack. We notice also that most of the space over which these tests are spread is devoted to repeated readings of the two sides of the "very finely divided pressure gauge" and of the temperature of the room.

Professor Webb did not believe that the study of these tests would settle any question that might arise on the subject. He described in brief an apparatus he had planned some years since for such experiments, and said that he might make it the subject of a future paper.

Chimney Draft—Fact.

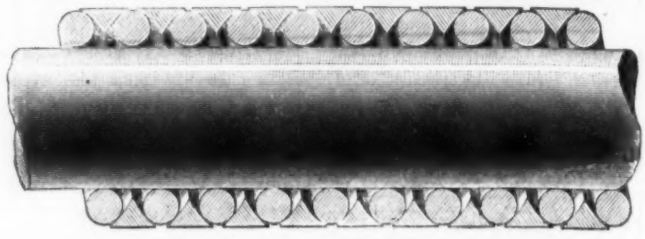
About this time the immense stove in one corner of the room, near the platform, began to smoke furiously. Mr. Holloway suggested that it might be well to appoint a committee to act upon the facts as found in this specimen of chimney draft. Another member proposed that it would be well to appoint a second committee on hydraulics to act in concert with the first. Other remarks were made in regard to area of grate and section of flue, and the advantages to be derived from automatic damper regulators, when, as if in reply to these resolutions, the committee marched up the center aisle. At the head was the fireman and chairman, his only hand being armed with a monkey wrench, and followed, Indian file, by three sons of Africa. Soberly and laboriously the chairman applied his monkey wrench to the damper, turned it, thereby increasing the effective area of the chimney, with the result that the smoke followed the passage man had built for it. The chairman and his committee then filed out, carrying with them the thanks and gratitude of the meeting.

A Novel Form of Flexible Tubing

was the title of a paper by T. R. Almond, New York City.

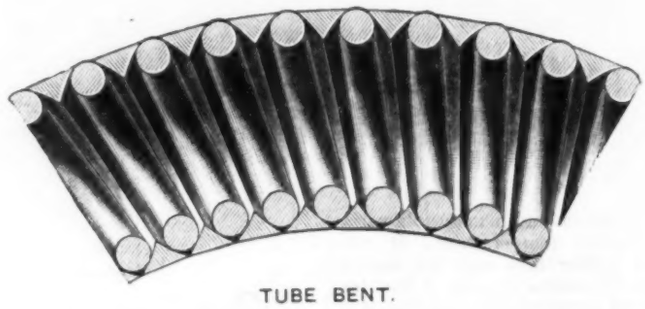
It seemed to me at first rather a wild kind of an idea to make a metallic tube which would be quite flexible, and which could be used for conveying illuminating gas. I have, however, after many experiments, succeeded not only in making a flexible tube for such purposes, but also one which will convey gases, steam or liquids under considerable pressure. This tube has sufficient flexibility for all practical purposes, with the additional advantages of great strength and durability.

When a tube is formed by coiling a wire around a mandrel the convolutions may be made to press upon each other with considerable force, and the joint formed at the point of contact of the individual convolutions will be tight in proportion to the amount of pressure exerted. If such a tube be bent the joints will be broken all around the coils except at one point, and therefore, when bent, it is useless for conveying liquids or gases.



TUBE BEFORE MANDREL IS WITHDRAWN.

Fig. 11.



TUBE BENT.

Fig. 12.

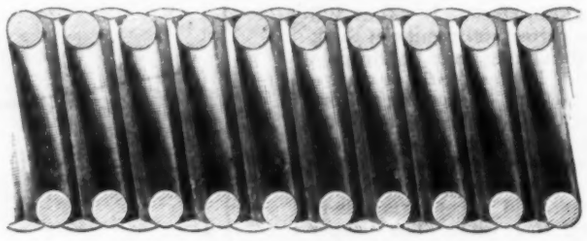


Fig. 13.

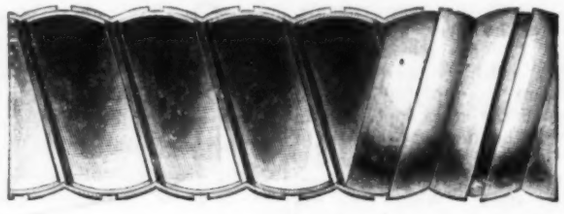


Fig. 14.

Wishing to utilize the peculiar flexibility of spiral spring tubing for the conveyance of gases in cases where a flexible tube is required, I conceived the idea of interposing a triangular-shaped wire between the coils of round wire, as shown by Fig. 11. When a tube so constructed is bent, the convolutions of the triangular coil adjust themselves to the spaces between the round coils, as shown in Fig. 12. The triangular wire is pressed between the coils of the round wire during the process of constructing the tube with sufficient force to spread them apart, so that the contact surfaces are at all times under pressure. The triangular wire serves two purposes; one is to spread the coils apart, so that the pressure will be exerted on the contact surfaces; the other, to fill the irregularly shaped spaces between the coils of round wire, adjusting itself to the changing form of the spaces due to any given flexion. This pressure brings into play the element of friction to such an extent as partly to destroy the flexibility of the tube, which, when bent, will retain the form given to it. This was an unlooked for and unexpected quality. As the primary object was to obtain a flexible tube, trials were made with wire having a more obtuse angle. This gave better results, as a more perfect joint was produced with less tension of the inner coil, and the friction became correspondingly less, the result being a tight tube with sufficient flexibility. Fig. 13 shows the shape of the seats into which the round wires are forced by their tension. Reference to Fig. 11 will show that the seat for the inner wire is much more ob-

tuse, and on this account the inner wire will not, under a given tension, be forced into such a seat so tightly as in the sharper V in Fig. 11. It will be seen that the degree of flexibility depends upon the amount of tension put upon the inner coil, or the extent to which the convolutions are forced apart. I have produced a perfectly tight tube with two coils of round wire, in which the outer coil is wound sufficiently tight between the convolutions of the inner coil to spread them apart for the purpose of getting pressure on the joints, substantially the same as with the triangular wire. This makes a very strong tube, but is too bulky for many purposes. Two half round wires, or even less than half round, may be used, or the inner wire may be round and the outer half round, or much less than half round. The tube will then be less bulky, and, supposing the outer wire to be considerably less than half round, the convexity of its surface may be such as to give results similar to the obtuse triangular wire. I have made several tubes in which the contact surfaces of the coils are made to coincide with a circle whose center is the axis of the tube. The joints so formed are practically a series of ball and socket joints; such a tube has smoother outer and inner surfaces than those previously described. A serious objection to such a tube is that the wire changes its shape during the process of coiling, so that the joint surfaces will not make sufficiently complete contact, whereas the forms of wire previously mentioned are of simple construction, and the slight change of form which occurs during the process of coiling will not affect the result. The extent to which this tubing may be bent without leakage is considerable; a piece of $\frac{1}{4}$ inch bore has been subjected to a steam pressure of 75 pounds without leakage; the smallest curves of the bent portion corresponded in this case to a circle 2 inches in diameter. I have not yet made any tube larger than $\frac{5}{16}$ inch bore, but think it possible to make them as large as 1 inch bore, and strong enough to stand any ordinary steam pressure. For purposes where pressure is not required the tube may be made of sheet metal, shaped as shown in Fig. 14, which may possibly be made as large as 2 inches in diameter.

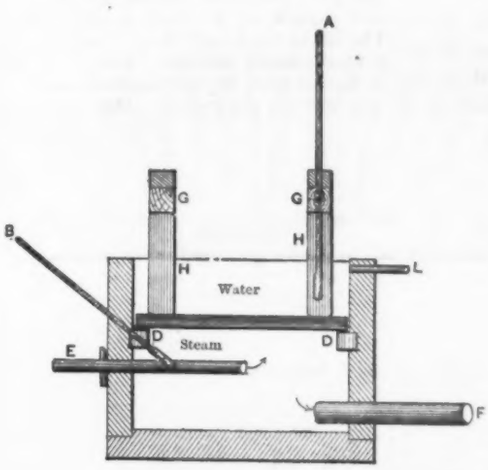
A paper by Prof. R. C. Carpenter, of Ithaca, N. Y., on

Heat Transmission Through Cast Iron Plates Pickled in Nitric Acid,

described some experiments made to ascertain the relative heat transmission through cast iron plates in the condition left by the foundry, as compared with the same plates treated with dilute nitric acid, for periods of 9, 18 and 40 days. The nitric acid, by dissolving the free iron and not attacking the carbon, forms a protecting coating to the iron, which is largely composed of carbon.

In making the experiments a series of cast iron plates was obtained, each cast at the same heat and from the same pattern, each measuring 8.4 x 5.4 inches by 0.45 inch thick. A bottle of concentrated nitric acid was obtained and two solutions in rain water were made—the first containing 1 per cent. of nitric acid by measurement, the second 5 per cent. of nitric acid. In each of these solutions three of the cast iron plates were placed. The plates were immersed in a horizontal position, and separated from each other by small blocks at the corners, so as to permit a free action of the acid. The solution was shaken and left for some time in an inclined position, to permit any air beneath the plates to escape.

The following method of testing the relative conducting power of the plate was adopted, after several trials, and proved quite satisfactory. A box, shown in section in Fig. 15, was made of boards 1 inch thick, with internal dimensions 8.5 x 5.5 inches and 6.5 inches deep. Near the center of the box and extending completely around on the inside a strip of wood $\frac{5}{8}$ x $\frac{1}{2}$ inch was rabbeted in place, as shown in the sketch. The top of this strip, marked D, was made accurately parallel to the top of the box and neatly fitted in place. A gasket of rubber packing was fitted to the projecting top of this strip. Two frames made of hard wood, with a horizontal piece about 1 inch square, were securely fastened to the box, as shown in Figs. 15 and 16. From the horizontal piece G of each frame two braces, H H, were set, with the lower ends resting on the plates to be tested. These braces were cut of such a length that by forcing them into nearly a vertical position a strong pressure was made to act on the corners of the plate to be tested, and no difficulty was found in producing a steam tight joint. The plate to be tested was introduced in the box as shown in the sketch, thus forming a horizontal partition, D D. Into the portion of the box below the plate a $\frac{1}{4}$-inch pipe, E, was introduced, terminating near the center of the box; this pipe was connected by a rubber hose to a steam supply; on the opposite side and near the bottom of the box was inserted a $\frac{1}{2}$-inch nipple, F, for the discharge of the condensed steam. A thermometer, B D, was inserted in the steam chamber as shown in the sketch, and maintained in the same position during all the tests. Water was put in the box above the plate and the heat transmitted through the plate was measured by the increase in temperature of this water. To measure the temperature of the water a thermometer, shown at A in sketch, was held in position by a cross piece of one of the frames, being kept with its bulb immersed and in the same position throughout all the tests, by maintaining a mark on the steam opposite the lower edge of the cross piece.



TESTING THE PLATES.

Fig. 15.

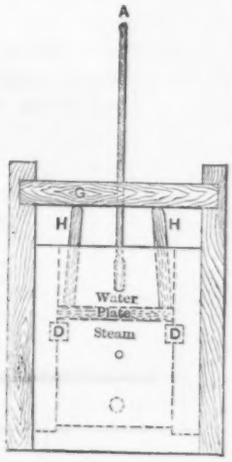


Fig. 16.

In making a test, the plate was first put in position, the box leveled and steam turned on in the pipe E, with pipe F closed, until it was ascertained that there were no steam leaks around the edge of the plate. Steam was then turned off in pipe E, pipe F opened, the water was added in the chamber above the plate until it passed off in the overflow pipe L. Steam was then admitted through the pipe E, and as soon as the water above the plate reached a temperature of about 70° readings of both thermometers were taken and continued each minute until the water attained a temperature of about 150°. The temperature in the steam chamber could not be maintained quite uniform, as shown by the readings of the thermometer B. There was also a slight variation in the degree of temperature at the beginning and ends of the different tests, but not enough to make any material difference in the results attained. The process used being exactly duplicated for each plate tested, gives the comparative transmission of heat for each plate, but does not give with exactness the number of thermal units transmitted, because of our ignorance of the currents existing in the water chamber. Assuming no horizontal currents to exist, which is probably true, the average number of thermal units transmitted per inch of surface is equal to the weight of the water, 3.125 pounds, divided by the exposed surface of the plate, 38.7 square inches, multiplied by the rise in temperature, or 0.0807, multiplied by the rise in temperature of the water.

In the investigation made by the writer the loss of conducting power of the plates immersed in the 1 per cent. solution of acid varied directly with the time of immersion up to 18 days, after which it remained nearly constant. Those plates immersed in the five per cent. solution showed a greater loss of conductivity for a short time of immersion, but at the end of 40 days the result from either solution was substantially the same.

Discussion.

The discussion of this subject took the direction of its practical application to the steam engine cylinder as a preventive of condensation. Professor Denton said he did not see how any measurement could be made to avail by taking the transmisson of heat through the walls of a cylinder. The condensation is from the walls, and is infinitely more than that due to transmission. He said that porcelain lined cylinders had been tried by Westinghouse; and also that cylinders had been plated with bismuth, which has a melting point of 400°, but, as its plastic point is 220°, it came out of the cylinder with the exhaust.

W. M. MacFarland said that an opportunity had been offered Professor Thurston to test the pickling process of the cylinders of an engine building at the Brooklyn Navy Yard, but that the requirements of the Professor were such as to compel the final abandonment of the idea.

Excursion.

During the afternoon an excursion was made down the river to visit the seven United States monitors, and the historical Drewry's Bluff and Dutch Gap. The trip gave the visitors an opportunity to more perfectly comprehend the nature of the improvements mentioned in Mr. Adams' paper.

At the evening session Prof. De Volson Wood, of Hoboken, N.J., presented three papers on "Some Properties of Ammonia," "Mechanical and Physical Properties of Sulphur Dioxide ($S.O_2$)" and "Theoretical Investigation of Efficiency of Vapor Engines." Prof. D. S. Jacobus, of Hoboken, N. J., read a paper on "Experimental Determination of the Latent Heat of Ammonia." The paper by James McBride, of Brooklyn, N. Y.,

Automatic Regulation of Injection Water to Vapor Condensers,

describes a simple apparatus designed by him for the purpose of automatically regulating the water supplied to vapor condensers, such as are used in the manufacture of sugar, dye wood extracts and other substances where liquors of light gravity are concentrated in vacuum pans. The device consists of a mercurial thermostat placed in the discharge pipe of the condenser, in connection with an electrical circuit and relay, which in turn controls the main circuit, in which an electro-magnet controls the valve of a water accumulator operating the injection valve which supplies water to the condenser. The local circuit is opened or closed by a rise or fall of temperature in the discharge pipe, a rise of temperature closing the local circuit, opening the main circuit and increasing the supply of water; and a fall of temperature opening the local circuit and closing the main circuit, diminishing the supply through the action of the accumulator.

In practice it has been found that the temperature of the hot well does not vary quite 2° F., and that the device completely regulates the varying amounts of heat passing to the condenser, and that when all the steam is shut off the water is also shut off. Although the apparatus can be worked with a battery current, the writer preferred to use the dynamo current where practicable for the main circuit, and the current for a 16 candle-power lamp, with one lamp in the circuit for resistance, is sufficient to operate the valve of the accumulator, and the alternate lighting and extinguishing of the lamp on opening and closing the main circuit shows at all times the working of the apparatus.

The device is also applicable to condensing engines and in electric light stations and other places where condensing engines are used and water for condensation is costly.

Topical Questions.

The only topical question discussed during the meeting was:

Is there any reason why corrosion should be more active in one place rather than another, inside a steam drum properly piped to connect several boilers in a battery?

The accompanying rough sketch, Fig. 17, shows the arrangement of the boilers and drum and the connecting pipes. James McBride, who had proposed the question, explained the situation. The drum was 24 inches in diameter and 48 feet long, and received steam from seven boilers. The drum had corroded all over, but in some places the action, whether mechanical or chemical was not known, had been much more violent than others. There was no corrosion at all in the boilers, which are made of iron. It begins with the pipes leading from the boilers, and from there runs through the entire system. Mr. McBride said the boilers were located in Brooklyn and were supplied with Ridgewood water. About 20 per cent. of the supply was water of condensation.

P. H. Grimm said that entrained water might be the cause of the trouble. He had known a cast iron elbow to be cut out by this.

In answer to a question Mr. McBride said that calorimeter tests showed dry steam; the average moisture was 4.6 per cent.

W. M. Barr thought that the pieces cut from the boiler and which were passed around for inspection did not indicate impact, but chemical action, and that the causes should be looked for in the water.

J. T. Hawkins was not credulous in regard to the impact theory. A study of the currents might reveal why certain parts

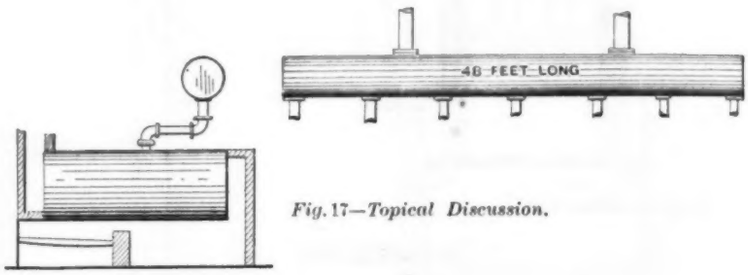


Fig. 17—Topical Discussion.

were affected more than others. All interior surfaces of a boiler are covered with an oxide, which may be removed by currents of steam in certain places, when re-oxidation will take place. This will result finally in the complete corrosion of the plate.

E. F. C. Davis said that the action of the steam in this case was similar to the action of water in mining pumps and pipes. If the water is quiet the iron will remain unaffected indefinitely by the oxide scale formed. It was probably caused by entrained water, and yet if this was the cause, why do not all steam pipes wear out? Water passing through rapidly will wear the pipe by removing the scale. Mr. Davis said that certain locomotives on the Philadelphia and Reading Railroad, after having been run for some time in a district supplying water impregnated with sulphuric acid, are then changed to an alkaline district, and thus the two kinds of water are made to neutralize each other.

J. W. Britton said that he had made plates since 1858, but had never had a plate served as the specimens exhibited.

The session adjourned without solving the problem.

The first paper of the Thursday morning session described the

Hydraulic Hoisting Plant for Pier of Brooklyn Sugar Refining Company.

By Louis G. Engel, Brooklyn, N. Y.—The work to be accomplished by a hoisting plant on the pier in question was the unloading of packages varying in weight from 1200 pounds to about 2600 pounds from vessels lying alongside, including the drag along the intermediate decks of said vessels to the hatches, and the transfer of a part of these packages to the second floor of the pier for storage.

If we except the use of electricity, which for hoisting had not been extensively developed when the matter was under consideration, three general methods would naturally suggest themselves, viz.:

1. Separate steam engines with drums.
2. Shafting driven by an engine on shore, with isolated fraction drums, actuated either by friction gear or a belt.
3. A hydraulic system.

It was the extensive use of water pressure in steel mills in this country and on docks abroad, and its great handiness in those places, as well as the fact that elevators were decided as best adapted for hoisting to the second floor, that led me to suggest a hydraulic system.

The principal disadvantages to be urged against a hydraulic system are first cost and danger of freezing in this climate. The latter we expect to prevent by using a non-freezing mixture, but I can give no figures as to whether a greater economy will balance the former. One fact is certain, that any man of ordinary intelligence can learn to hoist with a hydraulic machine in far less time than with a steam engine, for the motion is positive, without any expansion, and under perfect control.

The plant consists of the following parts:

1. Pump for pressure and drip pump.
2. Two weighted accumulators.
3. Pipes: High pressure main, low pressure return main and drip pipe.
4. Tanks: Suction tank and drip tank.
5. Four whip hoists for unloading vessels on the first floor of pier.
6. Two hydraulic platform elevators.

THE PUMP.

The pump is the Worthington horizontal duplex, plunger pressure pump, 20½ x 4½ x 15 inches, and will run at about 55 pounds against 800 pounds water pressure, and our ordinary exhaust pressure of 4 pounds. The pump is calculated for 800 gallons per minute. The water glands, plungers, valves and seats are of bronze. The drip pump is a Rumsey rotary, driven by a hand crank.

THE ACCUMULATORS.

The two accumulators are placed side by side in a brick tank, the bottom of which is a large block of concrete, resting on square spruce piles driven through the mud into the beach. Two of moderate sizes were selected rather than a single large accumulator, because one may be repaired without stopping the plant, as either can regulate the pump. In operation, one is actually weighted heavier

than the other, and controls the pump steam valve, while the light accumulator remains full in reserve for any excessive draft on the system.

The construction of the accumulators is shown by Fig. 18. The plungers are 10 inches diameter by 8 feet stroke. The weighted form was adopted in preference to a steam balanced accumulator on account of too great a variation in steam pressure. The wrought iron tub, A, with cast iron bottom, loaded with 30,000 pounds of pig iron, is suspended from a cross head, B, on the plunger, C, which slides in the cylinder, D, with proper guide and stuffing box. The cylinder rests on the brick foundation on the brackets, E, and is held down by anchor bolts. A steadiment for the weight is provided by two guides of rails on wooden posts at F. The top is prevented from rising too high by two rods with buffers, as at G, which pass up through the cross head from the base brackets.

The stuffing boxes are deep, and are arranged for seven-eighths square flax packing, which has also been used on all the large plungers and pistons of the system, and has thus far given excellent results. The glands are of bronze, and have drip pans like H, with pipes to catch any leak from the stuffing box. Permanent joints are made with lead.

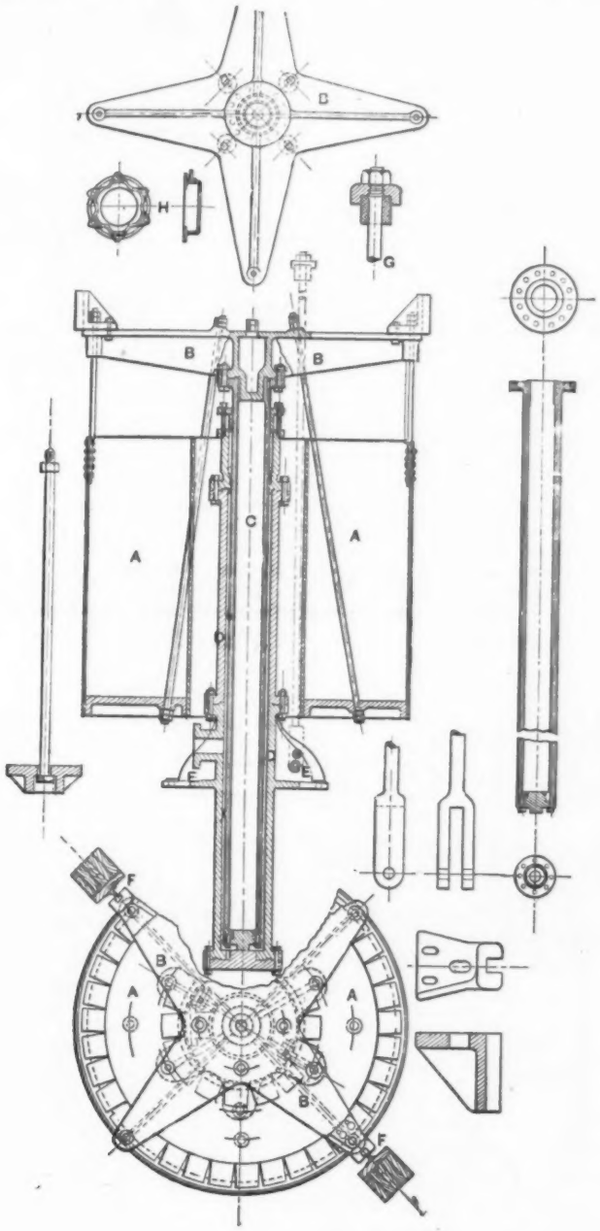


Fig. 18.—The Accumulator.

THE PIPES.

The high pressure main consists of 5, 4 and 3 inch nominal diameter double extra wrought iron pipes, with oval male and female flanges and two bolts to a joint. These are shown, as well as the cast iron tees, in Fig. 19. All the separate parts of the system were tested to 2500 pounds. The threads are straight and the ends of the pipes are faced fair with the flange. The joint is made between these faced ends by a gasket of "dermatine," a special rubber insoluble in oil or glycerine, which it may be deemed advisable to use in the future.

I will now describe the special appliances on the pipes to prevent a break on the main, and to nullify as far as possible the evil effects, should one occur. Thus, each connection from the two accumulators, as well as that from the pump to the main, has on it a weighted safety valve, Fig. 20, consisting of a bronze plug working through a leather cup, and closing on a conical bronze seat, as shown. The safety valve on the pump is to prevent the latter from bursting the connections under its stop valve. The function of the accumulator safety valves will be explained in connection with the automatic stop valves, one of which follows each safety valve on the run toward the machines.

The automatic stop valve, Fig. 22, consists of a bronze sleeve, A, seated on a conical seat, B, in a tee body, C, in such a manner as to leave an annular space, D D, around said sleeve in the direction of the run of the tee. Thus, if the valve is closed against the branch of the tee body, E, the run of the main, C C, is still open. Again, it will be observed that when the valve is open and under pressure, the only unbalanced pressure is that due to the area of the stem F, which area is counter weighted (not shown), so that the valve is in balance at 550 to 600 pounds pressure. The stem is also provided with a thread, as shown, so that by screwing up the hand wheel G against the cross head H the valves may be used as an ordidary stop valve to shut off either an accumulator or the pump.

In order to understand the automatic function of these valves, I will now explain the method of putting pressure on the system.

The pump is run slowly until certain air cocks, by showing water, indicate that the high pressure main is full. All the automatic stop valves are now closed until the pump discharges through its safety valve back into the suction tank, when they are again opened wide by means of the hand wheels on the thread. These hand wheels are then immediately run up to the crosshead again, releasing the valves, which, as they are now under 750 to 800 pounds pressure, remain open on account of the unbalanced pressure on the stem area; but should the pressure fall below 550 pounds they would fall by reason of overweight.

The light accumulator now rises to the top of its stroke, and is stopped there by rods from the base. The heavy accumulator then rises to two-thirds stroke, and there lifts a weight which, by means of a connecting chain, counterbalances the weight on the steam regulator valve of the pump. The last weight then falls and shuts off the steam, and the system is ready for use with the pump under control.

The weight raised by the accumulator has a second chain, slack enough so as not to interfere with the pump regulation, to a heavily weighed vertical cog rack, in a sliding frame, held from falling by a gear wheel meshing into it, which is prevented from turning by a projecting tooth on an inclined hinged lever, also weighted to hold it in place. A light chain passes from the lower end of this lever to the stem of each of the automatic stop valves.

This completes the safety arrangement, the action of which is as follows:

Should a break occur on the main, such as would endanger the accumulators by too rapid a descent, the pressure would probably fall below 550 pounds, which would cause the automatic valves to drop instantly and shut off the accumulators and pump from the break. Any one of these valves in falling will jerk out the pin from between the teeth of the gear wheel supporting the weighted rack, the descent of which rack lifts the counterbalance of the weight on the steam regulator, and as the last weight is free to act, it instantly falls and shuts off the steam from the pump.

Any further movement of the accumulators or pump which might occur will be relieved by the safety valves under the automatic stop valves, so that a sudden shock would probably be avoided.

This arrangemont has been repeatedly tested by allowing the pressure to fall below 550 pounds, when the entire preceding action has been observed to take place within a few seconds.

The branches from the accumulators unite in a tee, from which the main runs out on the pier, passing through the automatic stop valve of the pump on the way.

The main is twice reduced in size on the pier, and is provided with tees at suitable intervals, to which tees are directly bolted the stop valves for the separate machines. These valves, shown in Fig. 21, are of bronze, similar internally to the automatic valves, and are provided with leather cups. The pipes from them to the first strainer which might become loose. These extra precautions may appear unnecessary, but when it is borne in mind that particles in water at such high pressure will not only cut the valves if caught under them, but will cause the pump to jump and break the high pressure gauge, the expense is warranted.

The piston is also fitted with a cup leather at E, and is turned down to form an annular space, F, the passage slots beyond each end of which are cut with a peculiar taper, so that when the piston is moved these slots in passing cup leathers shut off the ports and passages in a gradual manner, and thu

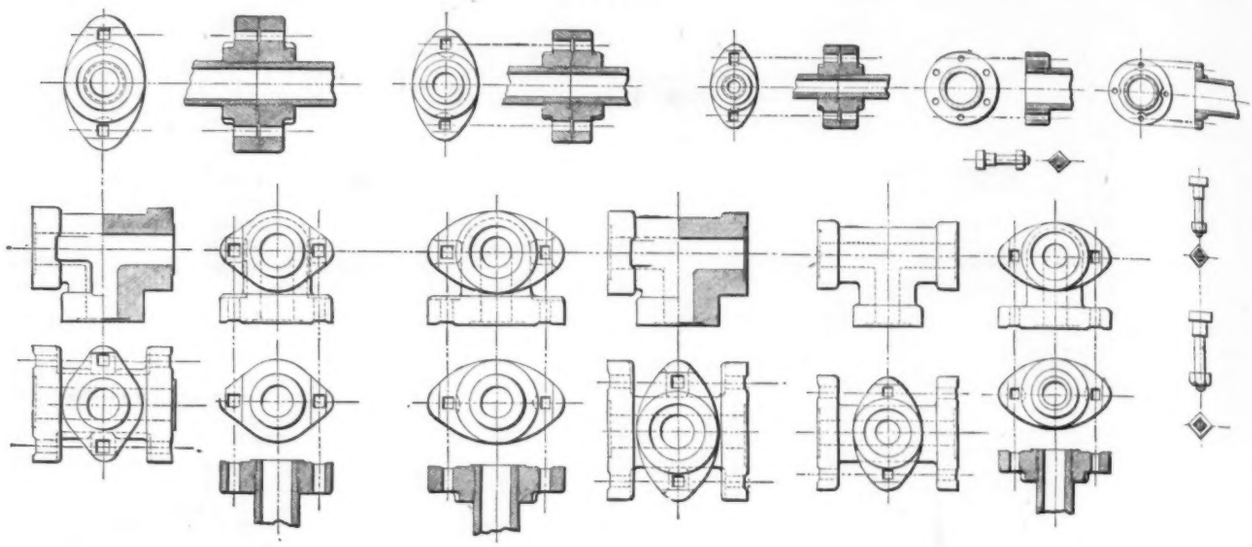


Fig. 19.—The Pipes.

machines are 2½ inches nominal diameter, double extra.

The water discharged from the machines is returned by a main of ordinary pipe, 2, 3 and 4 inches diameter, to the suction tank, which is covered by an inverted conical strainer of punched sheet brass on a frame, the circumference of the base of

A third pipe, 2 inches in diameter, is placed under the pier, with a down grade toward the drip tank in the accumulator pit. Into this tank flow all the leakages from stuffing boxes, as well as the drains from all the pressure cylinders, from whence they are raised to the suction tank by a rotary hand pump.

sudden shocks on the piping, due to the arrest of moving water under high pressure, are avoided. A small poppet valve, H, at G, held down by a spring, gives further relief in action, as follows :

If the piston is pushed to the middle of the stroke, as in the drawing, its annular passage is shut off from the pressure at X,

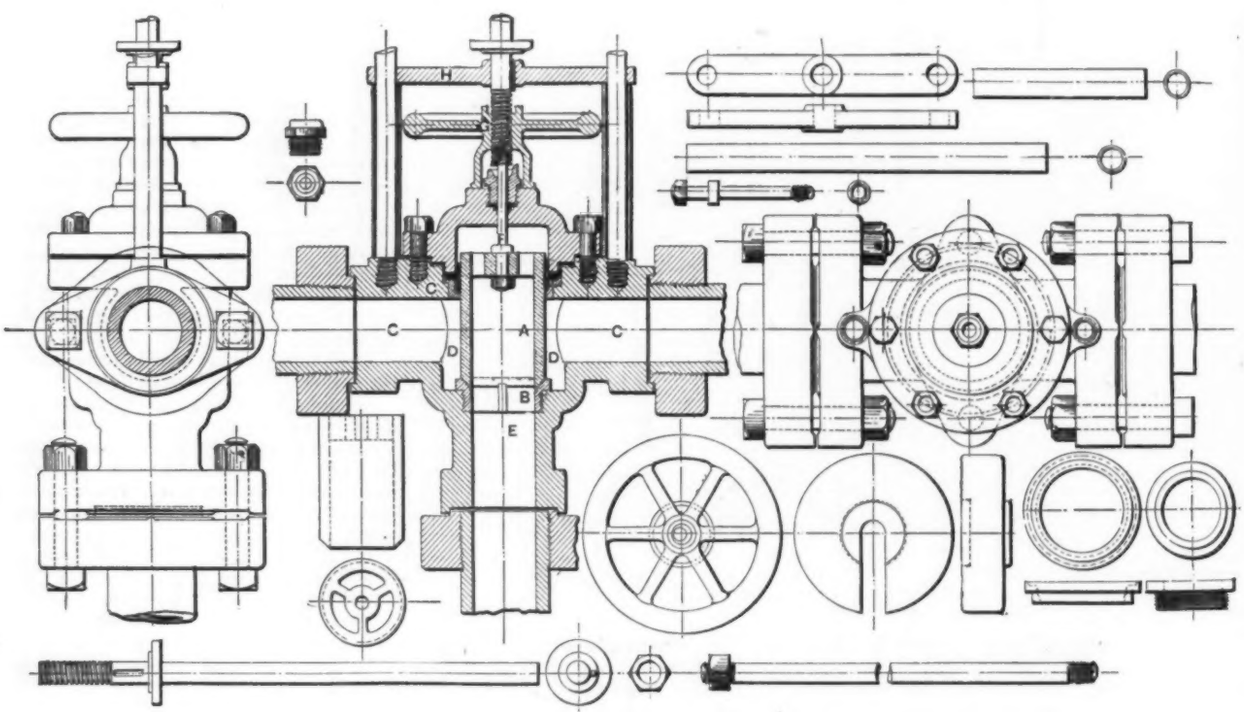


Fig. 22.—Automatic Stop Valve.

which is an angle iron resting on the top of the tank and of its full diameter. All the pipes from safety valves, drip pump and the exhaust main discharge into this strainer, so that any particle of scale, packing or other material which might be borne along by the water will be prevented from entering the pump. A second coarse strainer is placed over the suction pipe to hold back bolts or rivets from the

We will now consider the stopping and starting device. This is the Ellingworth valve, is entirely of bronze, and is used both on the elevators and whip hoists.

The body, Fig. 23, is a cylinder with three branches—X, the high pressure inlet ; Y, the way to the machine and the return passage from the same, and Z, the exhaust outlet to the return main. A cup leather is held at M, as shown.

and from the exhaust at Z, by the cup leathers at E and F, but is open to Y. This movement corresponds to stopping a machine. If the machine has been exhausting, the water, issuing from Y, raises the small valve H, at G, in which case H becomes a relief valve during the time the machine is coming to rest, and balances the inertia of the moving parts against the high pressure at X.

It will further be easily seen that by sliding the piston to the left sufficiently X and Y, or the pressure and the machine are in communication by the annular space of the piston, and the exhaust is closed. By sliding to the right Y and Z, or the machine and the exhaust, are in communication, and the pressure is shut off.

This will finish the description of the piping, except to mention that all the drips and smaller connections of the machines on the high pressure are closed by asbestos packed cocks. The exhaust pipes are provided with Ludlow gate valves.

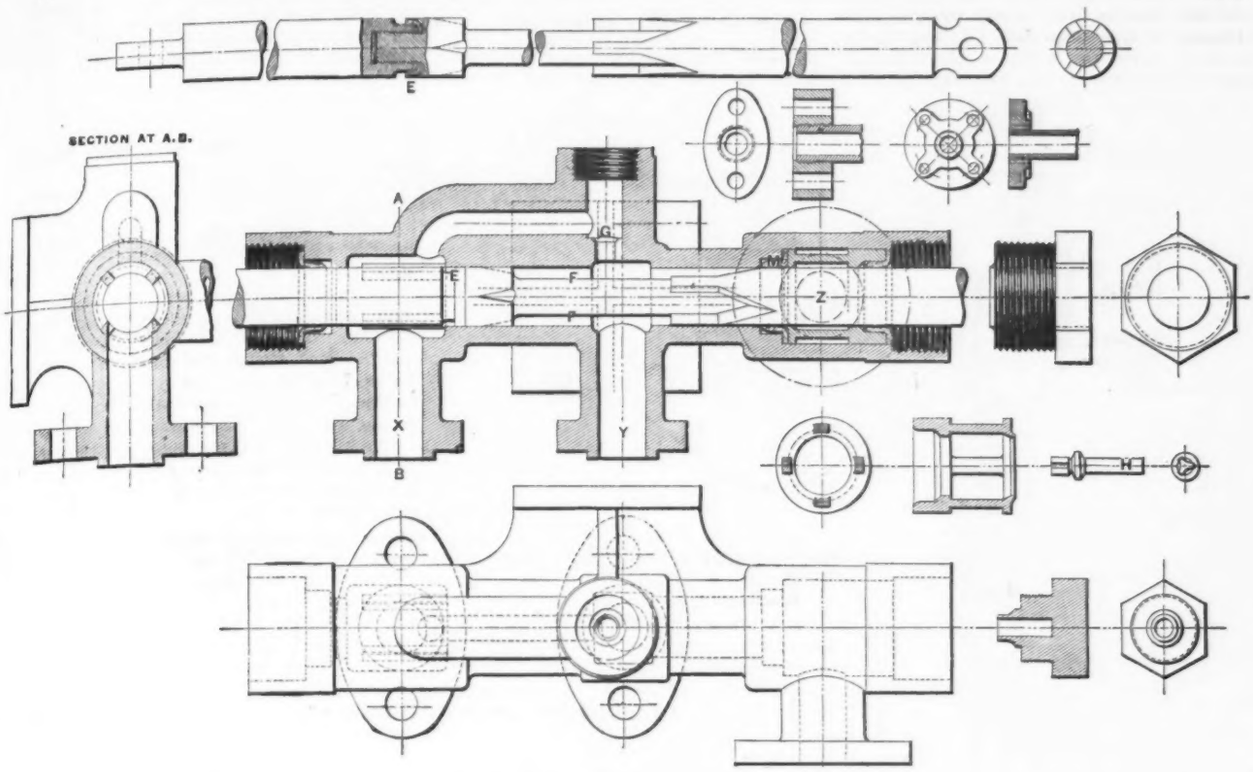


Fig. 23.—Stopping and Starting Device.

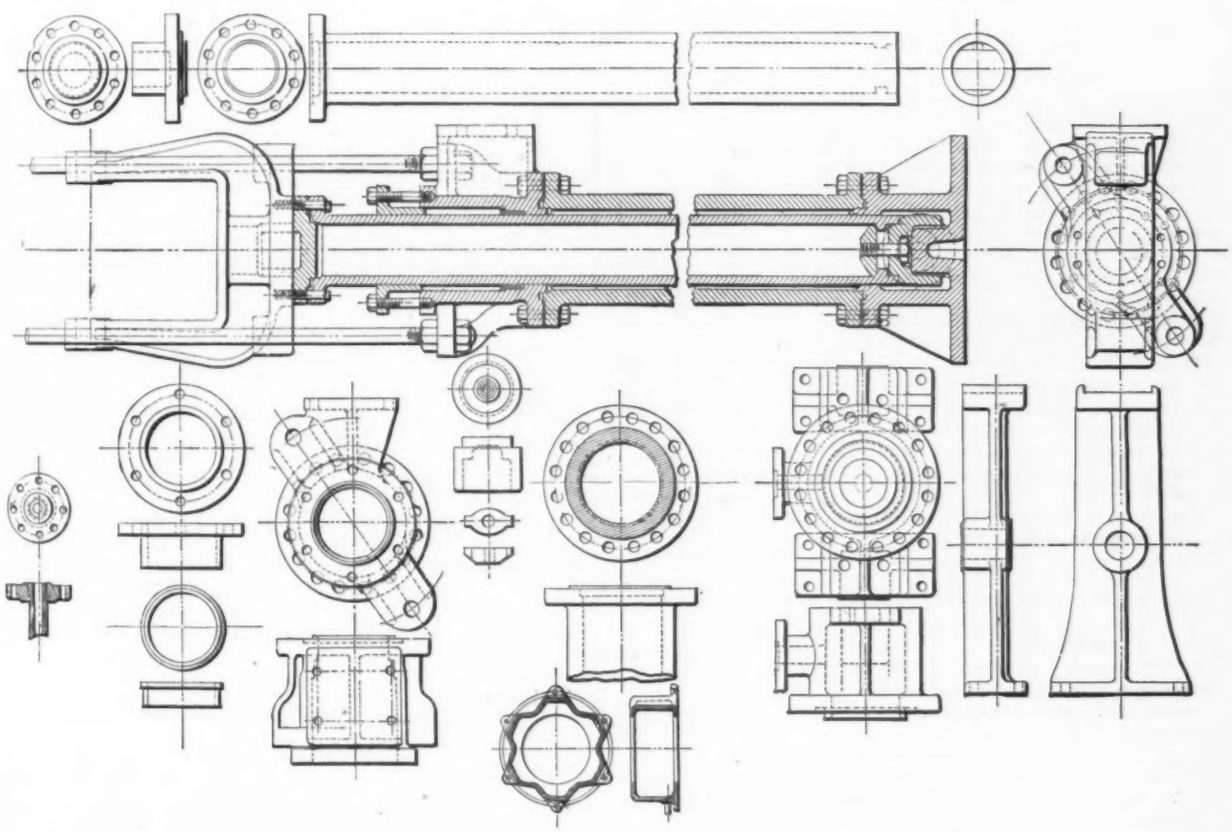


Fig. 24.—Whip Hoist.

THE WHIP HOISTS.

Of these there are four in the system. Each consists of a massive vertical cylinder with stuffing box and gland, resting upon a pedestal carrying four 30-inch grooved wheels on a common shaft, the cylinder inclosing a plunger of cast iron 8¼ inches in diameter, and of a sufficient length for 8 feet stroke. This plunger is surmounted by a cast iron fork sliding on 2-inch wrought iron bars, and carrying four wheels, the same as those below. A ¾-inch wire rope starts from a socket attached to the base and passes around the sheaves in the manner of a tackle, while the last whip end passes up to the second story of the pier and envelopes a drum on a horizontal shaft just under the roof. This

drum consists really of two drums, one 30 inches diameter, more than twice the width necessary for the wire rope, and a drum 48 inches in diameter alongside. A counterweighted traveling sheave coils its rope into the grooves left vacant by the unwrapping of the whip end. By applying pressure under the plunger, the reverse action of a tackle ensues; the whip end is taken in by eight times the stroke, or 64 feet, and if a manila rope be coiled on the 30-inch drum and run out to a vessel, 64 feet of hoist may be obtained. By exhausting the water the plunger sinks by its own weight and is assisted by the counterweight, which, furthermore, keeps all the wire ropes taut, while the manila rope has a small counterweight attached to overhaul it.

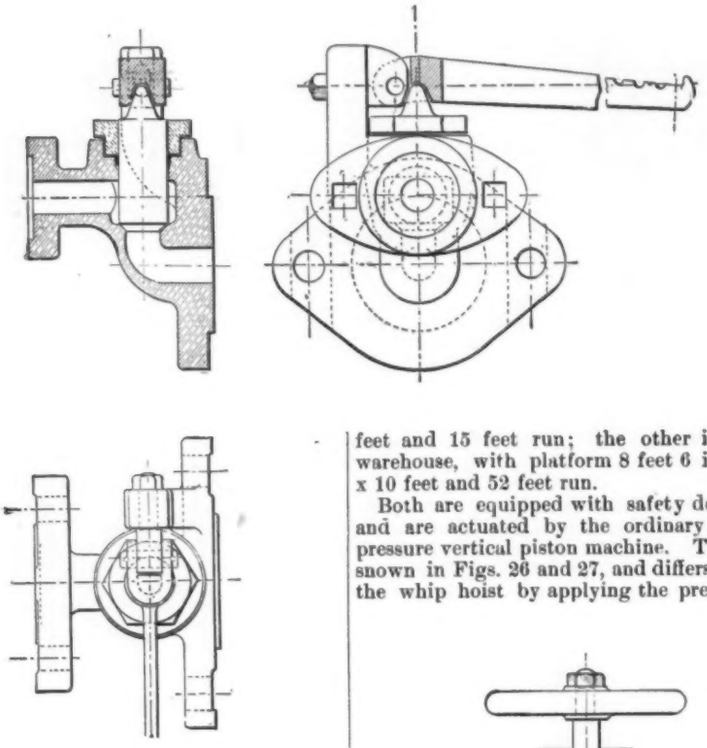


Fig. 20.—Weighted Safety Valve.

It is ordinarily intended to hoist with the 30-inch drum one hogshead of from 2000 to 2500 pounds, but some allowance had to be made for the friction of the machine itself and the leading blocks. One machine, with a grooved sheave only for the manila rope, on a test with 750 pounds water pressure, balanced 3270 pounds.

The 48-inch drum is for use in case lighter packages are to be hoisted; for instance, slings of bags or mats, which will vary from 1000 to 1500 pounds. The drums are not strictly in this proportion; some advantage has been given the larger drum for greater speed, as the possible hoist is longer—viz., about 90 feet.

Thus the wire rope merely turns the drums on their shaft, the counterweight overhauls the machine, and all the direct hoisting is done by manila rope, which is furnished by the stevedores unloading the cargo. Fig. 24 shows the details of construction of the whip hoist and Fig. 25 the position on the pier, as well as the valve arrangement. The drum was placed in the roof so that both sides of the pier would be equally under command, and to this end the operating levers and rods go to a window on either side of the second story, so that the hoistman stands where he can view the hatchway of the vessel from above, and thus hoist more intelligently than if he were gauging by a knot on the rope. Each hoist is made to close its valve automatically at the upper end of the stroke, and is further restrained from leaving the cylinder by stops on the guide rods. The hoist also cushions on springs at the lower end of the stroke.

THE HYDRAULIC ELEVATORS.

Of these there are two on the system—one on the pier, with platform 10 x 10 feet and 15 feet run; the other in the warehouse, with platform 8 feet 6 inches x 10 feet and 52 feet run.

Both are equipped with safety devices and are actuated by the ordinary high pressure vertical piston machine. This is shown in Figs. 26 and 27, and differs from the whip hoist by applying the pressure over a packed piston to pull down the latter with its rod, instead of pushing up a plunger. The disposal of the exhaust water is also different; thus, instead of discharging into the exhaust main direct from over the piston, it is returned by a circulating pipe under the piston, completely filling this space, to be pushed out by the next stroke of the machine. A deficiency in the quantity of water over the piston caused by the displacement of the piston rod (which is lacking below), is made up by an enlargement of the circulating pipe, which, being full, makes up what is wanting The same valve as for the whip hoists controls this circulation, and when this valve is in midstroke or closed the piston is held between two incompressible masses of water, which lock the platform in any given place, and resist any unsteadiness of the same while coming to a state of rest.

The 10-foot square platform, on a test with 750 pounds water pressure, balanced a load of 5700 pounds, and will readily lift the 4500 pounds for which it was designed.

A direct plunger under the platform was contemplated instead of the preceding machine, but was abandoned because it cut the dock timber too much and projected into a strong tide.

Figs. 28 and 29 show the accumulators, pump and tanks, in which AA are the accumulators; B is the pump; C, the suction tank; D, the safety valves; E, the automatic stop valves; F, the high pressure main; G, the low-pressure return main; and H, the suction to pump. The drip tank and pump are not shown.

The choice of high pressure over low may require some explanation. Of course the chances for leaks are vastly increased by the use of high pressure, and the workmanship must be of a superior kind, but, weight for weight of material to do a certain amount of work, there is little to choose either way, while the great bulk of low pressure machines was objectionable on account of limited space.

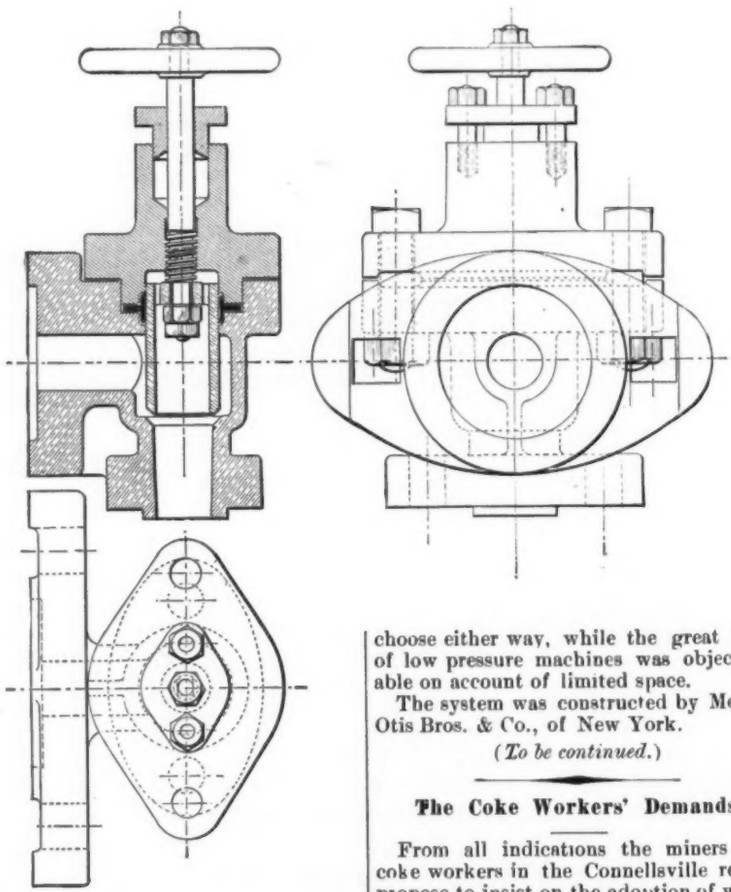


Fig. 21.—Stop Valves.

The system was constructed by Messrs. Otis Bros. & Co., of New York.

(To be continued.)

The Coke Workers' Demands.

From all indications the miners and coke workers in the Connellsville region propose to insist on the adoption of weigh scales on tipples and the adoption of the eight hour day system, at the conference which will soon be held to formulate a wage agreement for the coming year. The following circular has just been issued by District Master Workman Kerfort, of the United Mine Workers:

In order that our position in regard to the demands to be made at the hands of the coke operators at the expiration of the present agreement may not be misunderstood, I recommend the following, which,

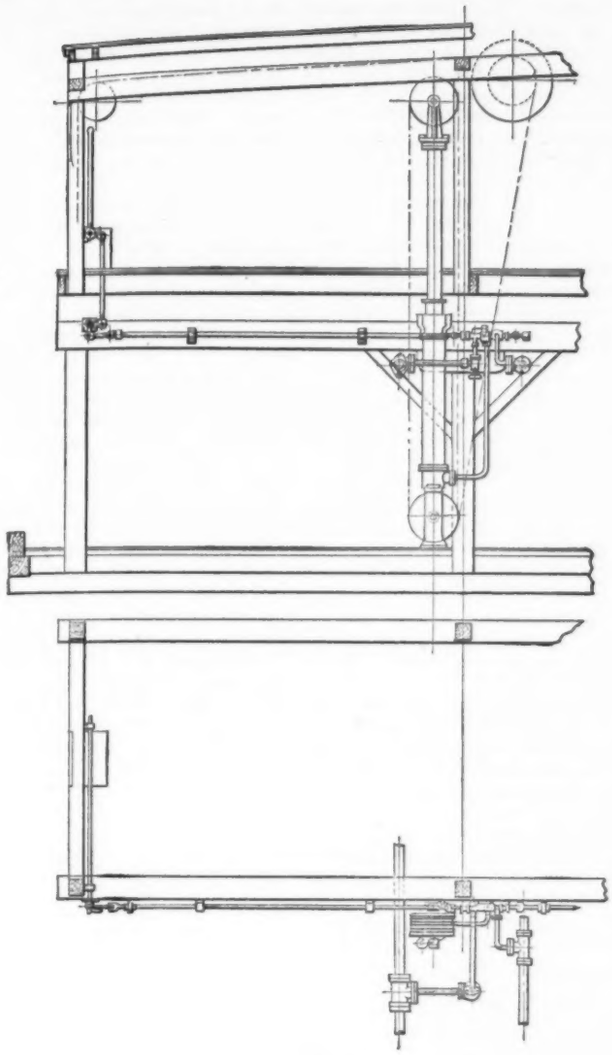


Fig. 25.—Position of Whip Hoist on Pier.

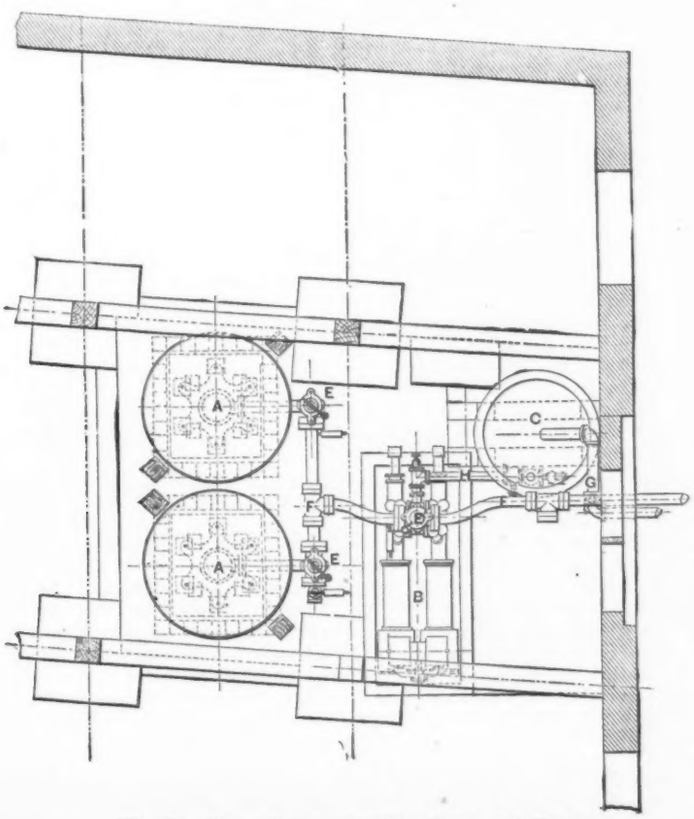


Fig. 28.—Plan of Accumulators, Pump and Tank.

if agreed to by both sides, will, I believe, put aside the bone of contention that has caused so much trouble in the coke region, and allow the employees to work in peace. I consider these demands, if conceded, would in part give us justice and start an era of good feeling and harmony between employer and employee. The demands are as follows:

1. That weigh scales be placed on tipples, and that all coal be mined by weight instead of measurement.

2. That eight hours constitute a day's work.

3. That day laborers shall not receive less than $1.50 per day.

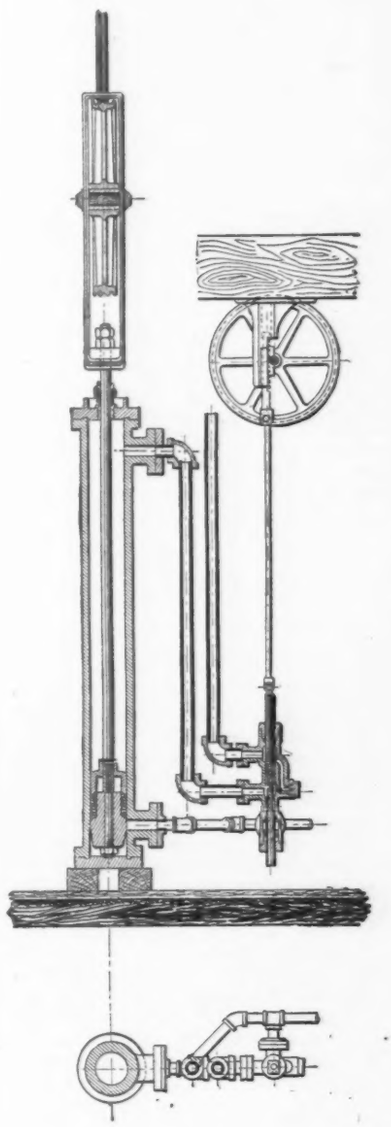


Fig. 26.—High Pressure Vertical Piston Machine.

As is well known, under the present agreement with the operators in the coke region, the coal has been mined by measurement, the wagons being branded at their capacity, but the wide difference of opinion existing as to measurement has led to contention at various times. By mining coal by weight this would all be avoided. I therefore call upon all workingmen in the coke region to fall into line and aid in obtaining these just and equitable demands.

Recent events in the coke region prove conclusively that the United Mine Workers organization is solid; that the members obey the call of their officers, and I ask them now to use every honorable

effort to further solidfy our ranks that we may present an unbroken circle when the time arrives to make a new agreement.

Failure of the Centre Iron Company.

Advices from Bellefonte, Pa., under date of the 16th inst., state that the blast furnace and rolling mill of the Centre Iron Company, at that place, have been closed on account of financial troubles. For months back—in fact, since the starting

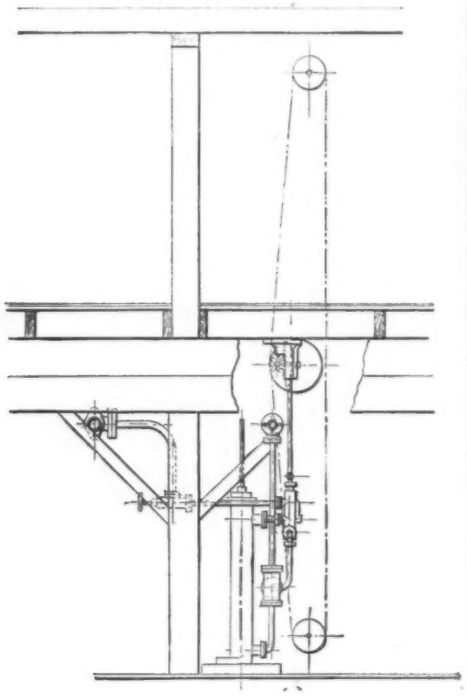


Fig. 27.—Hydraulic Elevator.

of the furnace in 1886—the company have been met by drawbacks, and when in last November the plant was put in perfect running order the indebtedness amounted to nearly $100,000 over and beyond a mortgage of $600,000 upon the plant and ore rights of the surrounding properties, which was given in exchange for an issue of 600 $1000 bonds. The bondholders will advance capital enough to run the furnaces in order to keep their securities afloat. An effort will also be made to secure a lower rate of interest on the bonds, which now pay 6 per cent. In the opinion of those directly interested the trouble was precipitated by the publication of a letter attacking the management of the company. Upon the morning following the publication judgments were entered and executions issued against the Center Iron Company in the Prothonotary's office, Bellefonte, by Robert Valentine for $5040.37; by a prominent banking house, of Pittsburgh, on a note for $25,000, dated August 17, 1889; by the Hostetter Coke Company for $865.97, and suit was brought by the Derry Coke Company for $1746.82. Unless the affairs of the company are adjusted previous to the first Monday in December, the Fidelity Insurance, Trust and Safe Deposit Company, of Philadelphia, will sue out the mortgage of $600,000 issued by them in 1886. The Fidelity Company are the trustees of the Centre Iron Company, and this fact gives the plant a first-class reputation and standing in the eyes of capitalists. Besides the claims above, there is a mechanic's lien entered by James Witherow, a Pittsburgh contractor, who built the furnaces, for $102,500.

A proposition has been made to the company by William Duncan, of Pittsburgh; William Jenkins and J. H. Lingall, of Bellefonte. They offer to lease the property and its rights, pay 4 per cent. interest on the bonds and a royalty of 25 cents a ton on all iron manufactured. In 1815 the four Valentines and Thomas, who were Chester County Quakers, started the original furnace. In 1852 the firm dissolved and divided the estate, which they estimated at $800,000. Each took $160,000 and returned the ore rights to the property, which were sold. Their sons leased the furnaces and paid a fixed rental for the privilege of operating the plant up to 1886, when they sold out to the Centre Iron Company. This company built the new furnace, costing over $100,000, which has a capacity of considerably over 100 tons of iron per day. They were able to mortgage the plant and ore rights for $600,000—one-third above the price they paid for the old property—to the Fidelity Insurance, Trust and Safe Deposit Company, of Philadelphia. Bonds were issued to the value of $600,000. The company provided for no working capital, and when they started the defects in the furnace kept them from paying the interest on $600,000 with the profits.

The Manufacture of Great Guns.

The Secretary of War in his annual report says: In the matter of armament a fair and promising beginning has been made. The gun factory at Watervliet Arsenal has already turned out completed steel guns of 3.2, 3.6, 8 and 10 inches caliber, which have been entirely satisfactory so far as their tests have proceeded. The 3.2-inch breech loading field gun meets with general approval in service, and the firing tests of the 8 and 10 inch type guns, manufactured at Watervliet, have given excellent results, both as regards accuracy and range, and have satisfactorily demonstrated the capability of the gun factory to turn out modern high power rifled steel guns equal to the very best. Two types of guns, one of 12-inch caliber and the other a 10-inch wire wound steel gun, both breech loaders, and a 12-inch B. L. steel mortar are now under construction at the gun factory.

Under the present contract about 13 12-inch cast iron mortars, hooped with steel, can be furnished per annum, and as there are other plants in the country besides that of the present contractors which are capable of turning out these mortars, it is only necessary that sufficient sums be appropriated for the manufacture of about 50 mortars a year, and the production of mortars will keep pace with that of guns and the construction of emplacements. No fear need be entertained that the plant for this work will not be in existence when needed.

The manufacture of the forgings for 8-inch, 10-inch, and 12-inch breech loading guns by the Bethlehem Iron Works, under the appropriation of $1,500,000 made in the act of September 22, 1888, is proceeding satisfactorily, and it is expected that the contract will be completed by November, 1893. The sum appropriated will procure about 61 guns of the calibers mentioned. In short, the art of modern gun making is now well inaugurated in this country. The carriages for the 8-inch and 10-inch guns will be of the disappearing type. Several designs of this type are now under manufacture or consideration. The 12-inch guns will be mounted on platforms, which will be raised into position for firing by an elevator, and then lowered out of reach of the enemy's fire to be reloaded and aimed, except where the position is at such an elevation as to make this unnecessary for the protection of the gunners. A design for such a platform and elevator has been approved, and one is now under consideration. The 16-inch guns, if any are made, will doubtless be mounted in turrets.

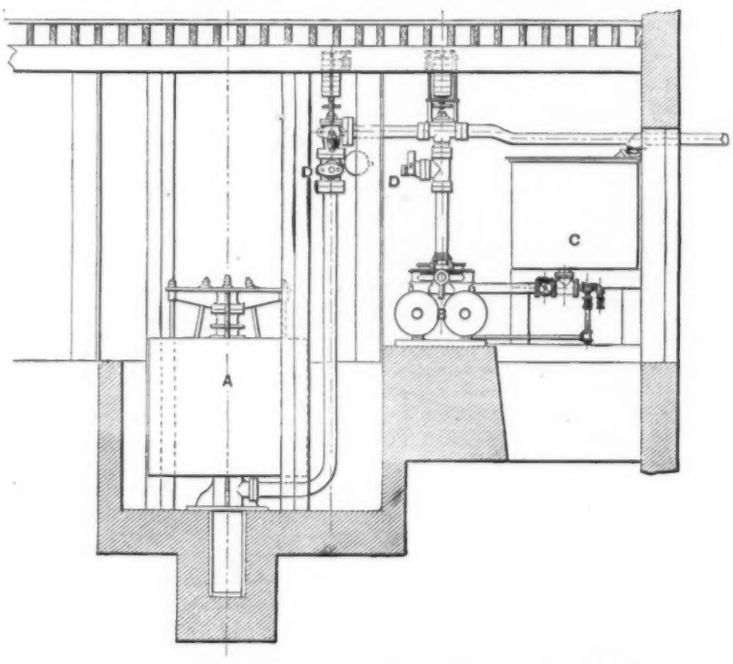


Fig. 29.—Vertical Section of Accumulators, Pump and Tank.

The Baltimore Tin Plate Company is the name of a new corporation projected at Chicago, with a proposed capital stock of $2,000,000, for the manufacture of tin plate and other articles. The promoters of the company are Max Pam, Henry H. Kennedy and George Einstein, together with Adolph Moses, president of the United States Corporation Bureau, at 122 Lasalle street, Chicago. They have secured an option on 1000 acres of land at Park Ridge, on the Wisconsin Central Railroad, and assert that the company is a genuine enterprise and means business. Beyond this statement nothing further has been disclosed with regard to the company. A number of erroneous reports are, however, in circulation. One of them is that John Wanamaker and John D. Rockefeller are interested. This has been denied by both gentlemen. Another is that

Norton Bros., of Chicago, are concerned in the scheme, but they also emphatically deny the allegation. If there are any large capitalists interested they are successfully concealing their identity.

Boston Street Railway Problems.

At the third annual meeting of the stockholders of the West End Street Railway, of Boston, Professor Whitney spoke of the new problems presented by the extended use of electricity. He said: "The use of larger cars has seemed to be called for, and, in consequence, 150 have been ordered, 50 of which are promised for the current month. Wherever electricity has been introduced there has been an astonishing increase of business, and here in Boston it has been almost impossible to keep pace with this increase. For example, let me read from the report of our general manager, Mr. Monks, on the increase for the 41 days succeding October 1, 1890, the close of our fiscal year. This, you will observe, does not include a period like the Grand Army week, when the travel was exceptional. In 1888-9 the increase was 4 per cent. In this 41 days the travel increased 13.38 per cent. This will serve to show what embarrassments the company have to labor under. Where does this travel come from? In the First Division, on lines now run by electricity, but were run last year by horse-power, the increase over the rate of travel at the same time last year is 44.18 per cent. The same is true of Cambridge, where we are hampered by being limited in speed on Main street. The increase has been 16 per cent. On the Allston and Brighton lines the added traffic has been enormous. The increase is about 73 per cent. Realizing that the traffic would be large, we made what we deemed ample preparation, and with this in view entered upon the erection of numerous power plants. We believe that there is no wiser investment than the money expended for power. When finished we shall have engines and boilers capable of furnishing 10,000 horse-power. We have, in addition, built chimneys and structures that can furnish room for appliances giving twice that power, if called for. As electricity comes more and more into use it is bound to grow in favor. We have experimented successfully with devices to decrease the noise of the motors that now seems to be the main objection. It seems to be the part of wisdom to extend the benefits of the system to Charlestown and other populous districts. In a few years, one or two at most, we must provide for an increase of 40 or 50 per cent. Washington street and Tremont street are too crowded already. It is physically impossible to put any more cars on those streets. We must carry people to stations in the outskirts of the city, and leave them there to carry on their journey by some other means of locomotion. We cannot put two cars where but one can go, and to give the people the best service possible we petitioned last winter for a charter for an elevated railroad. A charter was granted. I know of but one route available for such a road.

It was voted that the directors be authorized to construct elevated railroads and do all things necessary or pertaining thereto—59,904 yeas, 873 noes.

The third annual report of the directors shows the operations of the road for the fiscal year ending September 30, 1890, to have been, in comparison with the previous year, as follows:

	1890.	1889.	Increase.
Gross earnings.....	$5,780,083	$5,249,903	$530,180
Expenses	4,134,041	4,099,037	135,004
Net.....	1,546,042	1,150,866	395,176
Taxes.....	222,378	167,561	54,817
Rent of leased roads.....	11,950	14,421	2,471*
Coupon interest.....	170,500	170,500	.....
Miscellaneous	74,003	58,975	15,028
Total charges	478,831	411,456	67,375
Balance.	1,067,210	739,409	327,801
Construction.	282,198	.....	.....
Balance for dividends..	785,012	739,409	45,603
Dividends ...	737,000	614,200	122,800
Surplus....	48,012	125,209	77,197*

* Decrease.

Guns for Coast Defense.

Gen. S. V. Benet, chief of the Bureau of Ordnance, in his annual report to the Secretary of War, says that all of the $700,000 appropriated in 1888 for the army gun factory at Watervliet has been expended, and the work of completing the plant for the full capacity of the building to give an estimated annual output of 24 guns (twelve 8-inch, seven 10-inch and five 12-inch) per annum, is now being prosecuted from the appropriation of $165,000 made in the Fortifications act of 1890. The intention is now to equip the south wing for the manufacture of both 12-inch and 16-inch guns—in the proportion of about fourteen 12-inch to three 16-inch guns—and the estimates of the department for the coming fiscal year will be based upon this understanding. Work under the contracts with the Pneumatic Dynamite Gun Company has progressed slowly. Most of the materials for the guns intended for the defense of New York and Boston have been procured, but the guns and plant intended for San Francisco have not been commenced. The Sandy Hook battery is nearly ready to be set up.

During the past year the following type guns were completed at the Watervliet Arsenal: One 8-inch breech loading rifle, steel; one 10-inch breech loading rifle, steel; one 10-inch breech loading rifle, cast iron, wire wrapped; one 3.6-inch breech loading field gun, steel; one 3.6-inch breech loading field mortar, steel, and carriage. Work has also been prosecuted on the finishing and assembling of a type 12-inch breech loading steel rifle, which is now so far advanced that the completion is expected by next February; on a 10-inch breech-loading steel wire gun and a 12-inch breech loading steel mortar. The last two should be completed next spring. The results of tests with the 8-inch breech loading rifle, made entirely of American steel, are said to have been very satisfactory after firing 76 rounds.

The estimates submitted for the next fiscal year are as follows: For the manufacture of eight 10 and 12 inch steel seacoast guns, $70,000; steel field guns of 3.2-inch caliber, $25,000; steel forgings for one type seacoast gun of 16-inch caliber, $125,000; carriages for field gun batteries, $61,000; carriages for 12-inch seacoast mortars, $325,000; alterations for existing seacoast carriages for 10 and 15 inch guns, $100,000; plant at Watervliet for carriages, $27,000; steel armor piercing projectiles, $200,000; testing 12-inch seacoast rifled mortars, $20,000; carriages for seacoast guns, $200,000; oil tempered steel for 8, 10 and 12 inch guns, $1,250,000; to complete the gun factory by the erection of the south wing and crane ways, $248,743; plant for the same, $460,000; powder and projectiles for service guns, $105,000.

Of the great 16-inch sea coast gun for which estimates are submitted, General Benet says the plans of the Fortification Board included 44 of these guns to defend ports of the first importance. The general ground upon which rests the necessity for the procurement of guns of this caliber is that the land defenses shall possess guns not only equal in power to any that the attack can bring forward, but that they shall endeavor to hold the superiority in this respect over the attack. Thirty-six of the forty-four 16-inch guns recommended by this board are for the defense of the three chief ports, New York, San Francisco and Boston. These guns are to be mounted in pairs, in turrets occupying low and exposed sites and commanding the principal water approaches to the port. Owing to their great cost but few of these turrets will be erected, and their armament should be of the heaviest caliber of guns attainable to justify their expense and secure for them an offensive power commensurate with the importance of the position they will occupy. The length of the proposed 16-inch gun is about 49½ feet, the length of bore 35 calibers, and the weight 125 tons. It will fire a charge of about 1000 pounds, with a projectile of over 1 ton in weight. The estimated muzzle penetration in iron is about 3 feet and the maximum range about 15 miles.

Of the large estimates for steel forgings for heavy rifled guns, the report says: "This appropriation should be made at the next session of Congress, as it is urgently needed to meet the requisite supply of forgings, the present manufacturing capacity of the army gun factory—north wing and center section. This plant, working alone, will require a new supply of forgings, with deliveries to commence about the end of the year 1893. If an appropriation is not made this session, there is every reason to anticipate that the gun factory will run short of work before a fresh supply of forgings can be obtained."

Another Nickel Steel Victory.

Commander F. M. Barber, United States Navy, recently received the following cable dispatch concerning the latest trial of armor in Europe: "The Russian navy made a comparative test of three plates at Ochta day before yesterday, the 11th of this month. The plates were 10 inches thick. One was of plain steel made by Schneider & Co., of Le Creusôt, France; the second was a compound plate made by Brown & Co., of Sheffield, England, and the third was a steel plate made by Vickers, of Sheffield. Each plate received five 6-inch Holtzer chrome steel projectiles, weighing 90 pounds each. The first two were fired with a striking velocity of 1900 foot seconds, and the three others with 2100 foot seconds. The Schneider plate arrested all the projectiles and broke three of them. The penetrations were 22 and 27 cm. In the Brown plate the first two penetrated 34 cm, the three others traversed the plate and backing and fell 750 m. in the rear. In the Vickers plate the penetrations were 53 cm. The Brown plate showed large cracks; the two steel plates had only fine cracks. The trial showed once more the absolute inferiority of the compound plate and the superiority of the Schneider plate, a superiority which would have been greater if the plate fired at at Ochta and delivered by the Le Creusôt works a year ago had been of the same fabrication as the nickel steel plate tried at Annapolis, embodying the latest improvements in the Schneider plates."

The New York elevated railroads earned last year $9,500,000 and carried 188,000,000 passengers. The net earnings were $4,246,000. New cars costing $500,000 have been ordered. The Brooklyn elevated railroads' earnings for the year ending June 30 last showed an increase of 43.7 per cent. on handsomely increased mileage.

MANUFACTURING.

Iron and Steel.

At Sheffield, Ala., $10,000 worth of improvements are being added to the Lady Ensley furnace, owned and operated by Enoch Ensley.

Parties from Philadelphia and Washington are reported as organizing a company at Winston, N. C., to build and operate an iron furnace.

The second furnace of the Colorado Coal and Iron Company, at Pueblo, Col., has blown in.

F. T. Aschman, of Sharon, Pa., has just contracted for a 5-ton open hearth steel melting furnace, and is fitting up a foundry and machine shop to make steel castings of all kinds. He hopes to have the plant in working order by January 1, 1891.

The steel plant previously reported as to be built at Buena Vista, Va., will be constructed by the Buena Vista Steel Company, recently incorporated with a maximum capital stock of $1,000,000. The officials of the company are as follows: C. M. Clark, of Philadelphia, president; A. T. Barclay, vice-president; G. F. Baker, secretary.

Salem, Va., next door neighbor to the growing iron city of Roanoke, is growing almost as rapidly as its twin sister. Among the numerous new enterprises under actual contract are a $100,000 rolling mill, a $75,000 muck bar mill, a $50,000 iron works and a $100,000 car works.

The Crawfish Springs Land Company, previously reported in this correspondence as organized at Crawfish Springs, Ga., will change the name of that town to Chickamauga, and will establish a steel plant, rolling mill and other industries.

The Kenwood Bridge Company have completed their plant at Grand Crossing, Ill., and are now at work on the construction of bridges. They will employ from 100 to 200 men, and will undertake all forms of iron and steel construction coming under the designation of bridge work.

Negotiations are reported to have been successfully terminated at Port Payne, Ala., between citizens of that place and Philadelphia capitalists, for the establishment of a steel plant to employ the F. G. Bates process.

Alabama has its Bessemer, now Virginia is to have a manufacturing town bearing that name. The Craig Valley Company, previously reported in this correspondence as having been organized at Eagle Rock, is back of the new enterprise, and are already vigorously at work formulating plans for the establishment of new industries. They are negotiating with a $500,000 stock company for the establishment at Bessemer of an iron furnace. Other iron plants are in contemplation.

The Eagle Iron Works, of St. Louis, Mo., have filed notice of an increase in capital from $10,000 to $25,000.

The South Tredegar Iron and Nail Works, of Chattanooga, Tenn., have been sold to the Cardiff Land Company, and will be moved to Cardiff, Tenn., in the near future. The Tredegar Works have been practically idle for two years.

The Thomas Furnace, at Niles, Ohio, which has been shut down for six months for repairs and improvements, was lighted on the 13th. The entire plant has been rebuilt, and it is expected that the furnace will turn out about 200 tons of Bessemer iron a day.

Buena Vista is one of the new Virginia towns that is manifesting remarkable industrial activity. Mention has already been made of the new steel plant to be erected. Besides this a mill with 28 puddling furnaces is soon to be built, and negotiations are reported pending for the establishment of a nail works and other iron manipulating industries.

The Star Forge at the Albany, N. Y., Iron Works was lighted on the 15th. The 18-inch mill is also in operation.

Three Gordon stoves are being put in at the furnace of the Burden Iron Works, Troy, N. Y.

It is stated that the Roanoke Iron Company, of Roanoke, Va., have recently awarded a contract to the Robinson-Rea Mfg. Company, of Pittsburgh, Pa., for the erection and equipment of a plate mill. Work is to begin at once and be pushed through to an early completion.

The Crucible Iron and Steel Works, East St. Louis Ill., will nearly double their capacity by the erection of a new foundry 100 x 64 feet. The improvements will cost $100,000.

The annual report of the Mahoning Valley Iron Manufacturers' Association, just issued, shows that the total output of the 16 mills and furnaces in the association reached 2,756,772 tons, an increase of 322,915 tons over the preceding year.

The Tassie Belle, a new charcoal iron furnace, has been lighted at Rusk, Texas.

The old Staunton Iron Works property at Staunton, Va., has been purchased by William E. Craig for $10,000, and will be improved and put into operation.

At Covington, Ky., the J. M. Love Pin and Link Holder Company, with $300,000, have been incorporated by J. M. Love, Epes Randolph and H. P. Whitaker to manufacture pins and link holders for railroad cars.

Hughes & Patterson, of Philadelphia, have commenced the erection of a new rolling mill at Beach and Vienna streets, that city. The building will be 140 x 120 feet, and is but one of several large buildings which this firm propose to build in the near future The plant now consists of two 9-inch finishing mills, an 18-inch puddle mill and a 20-inch plate mill, covering an area of 600 x 259 feet. These buildings will be demolished as the proposed improvements progress. Work will shortly begin on a new puddle mill, 160 x 90 feet, having five furnaces, with a total daily capacity of 60,000 pounds.

A decree of sale of the Lawrence Iron Works, Ironton, Ohio, has been issued to satisfy a claim of $50,000.

The Walton Iron Works, of Cincinnati, Ohio, have accepted the inducements offered by the Covington, Ky., Common Council, and will locate their plant there.

Work is now vigorously in progress at Middlesborough, Ky., on the basic steel plant being built by J. P. Witherow & Co, of Pittsburgh, Pa., for the Watts Iron and Steel Company, of London, England. This plant will be a well equipped open hearth basic steel works, and will include seven furnaces, each with a capacity of 25 tons. The capacity will be 350 tons of slabs and billets per day.

It is stated that a company will be organized at Morristown, Tenn., for the purpose of establishing a steel plant.

The recent purchase of the plant of the Allegheny Bessemer Steel Company, at Duquesne, Pa., by Carnegie Brothers & Co., Limited, of Pittsburgh, has caused a number of reports to be circulated with regard to certain future movements which the Carnegie firm are credited with. The latest of these is to the effect that the firm propose to remove their Upper Union Mills from Pittsburgh to Homestead. We are advised that there is no truth in this report whatever.

The American Tube and Iron Company, of Youngstown, Ohio, have just completed an addition, 125 x 75 feet, to their plant.

The blast furnaces of the Pennsylvania Steel Company, at Steelton, Pa., are all in blast and doing good work. Stack No. 2 had a flag floating from the top of the hoist in honor of its having made the largest tonnage.

Furnace F of the Crane Iron Company, at Macungie, Pa., was blown out last week to permit some necessary repairs to be made. It will be idle about two months.

The plant of the Elba Iron Works, at Laughlin's Station, near Pittsburgh, which has been operated under lease for two years by Harry Darlington, of that city, has closed down, the lease having expired. Negotiations for the lease of the plant by a prominent concern in Pittsburgh are now pending, and will probably be closed during the present week.

The annual report of the Mahoning Valley Iron Manufacturers' Association was issued on the 12th inst. by H. E. Passavant, secretary of the organization. The report shows that the total output of the 16 mills and the furnaces in the association reached 2,756,772 tons, an increase of 322,915 tons over the preceding year. The shipments of pig iron reached the highest point in December, 35,000 tons, while the manufactured iron shipments were the largest in November, 28,000 tons. The concerns in the association are the Mahoning Valley Iron Company, the Andrews Iron Company, Ohio Iron and Steel Company, Girard Iron Company, Falcon Iron and Nail Company, Brier Hill Iron and Coal Company, Cartwright, McCurdy & Co., the Hubbard Iron Company, Andrews & Hitchcock, Coleman, Shields & Co., Thomas Furnace Company, Sumers Bros., Youngstown Iron and Steel Company, Struthers Furnace Company.

A 9-foot ore pan has just been added to the equipment of the Wheeling Steel Works, at Wheeling, W. Va. A 7-foot ore pan has also been put in at the plant of the Riverside Iron Works, in that city.

We are informed that the report that Harry Darlington, of Pittsburgh, has leased the plant of the Millvale Rolling Mill, in that city, is without foundation. This plant is now operated under lease by the Millvale Iron Company, Limited, and is turning out about 200 tons per day of iron and steel plates and universal plates. F. N. Hoffstot, secretary and treasurer of the last named concern, advises us that the plant is in the market for sale, but will not be leased under any circumstances.

The blast furnace of Shoenberger, Speer & Co., at Pittsburgh, which has been undergoing repairs for some time, has gone into blast. The furnace has been increased in hight to 75 feet and relined. The other stack is also in operation, but will probably be blown out during the coming year for repairs.

No. 1 Furnace of the Carrie Furnace Company, at Rankin Station, near Pittsburgh, has been put in blast after being relined and repaired. New hot blast stoves were also added.

The new stack of the Isabella Furnace Company, at Etna, near Pittsburgh, was put in blast last week. It is 75 x 16 feet in size and is expected to turn out about 150 tons per day.

The Laughlin Nail Company, of Wheeling, W. Va., recently made a shipment of 1250 kegs of steel nails for export to Spain.

The iron plate department of the Britton Rolling Mill Company, on the Lake Shore and Michigan Southern Railroad, near Hoyt avenue, Cleveland, is nearly complete. The engine, boilers and rolls have been brought from Chicago, where they were in use for four months, but have been idle for several years.

The following plants are now being equipped with the Meyers hydrocarbon burner by the Standard Oil Fuel Burner Company. Fort plain, N. Y.: F. A. Wurster & Co., 375 Kent avenue, Brooklyn, N. Y.; Pennsylvania Bolt and Nut Company, Lebanon, Pa.; the Toledo Bolt Company, Toledo, Ohio, and the Lozrio & Yost Bicycle Mfg. Company, of Toledo, Ohio.

Machinery.

The Buda Foundry and Mfg. Company have awarded contracts for the erection of their new plant at Harvey, near Chicago. There will be eight buildings in all, the largest of which are described as follows: Wood shop, 250 x 60 feet; machine shop, 150 x 60 feet; smith shop, 150 x 60 feet; store house, 100 x 60 feet. The works of the company are at present located at Buda, Ill., where they manufacture hand and push cars, switch stands and other railway supplies, and also turn out general foundry and machine work.

The incandescent department of the Thomson-Houston Works, at West Lynn, Mass., is now turning out 28,000 lamps weekly. Four years ago the weekly product was about 1800.

The Hampden Corundum Wheel Company, of Chester, Mass., have decided, after several weeks of deliberation, to locate at Brightwood, near Springfield, Mass., and accordingly work has been begun upon a new factory for them there. The building is to be 80 x 30 feet, of wood and two stories high. It is intended to complete it in time for occupancy by January 1.

The contract for the new brass foundry at Springfield, Mass., has been awarded and work will begin at once. The plans provide for a building 50 x 91 feet. The front will be practically a building by itself, 42 feet high, 40 feet deep and containing three stories. The foundry proper will be one story high and 51 feet square.

A. T. Shaw and E. N. Jones have purchased the old skating rink property at Adams, Mass, and will turn it into a foundry and machine shop. The building is being remodeled and a cupola has been put up.

The Ingersoll-Sergeant Rock Drill Company, Boston office at 201 Congress street, have just shipped a large plant of mining machinery, comprising air compressors, rock drills, &c., to the Jehu mines in China.

It is rumored that the Boston and Maine Railroad have purchased the Swamscot Machine Works, at South Newmarket, N. H., and will establish extensive repair shops there.

The machinery for the new marine railway at East Boston was put in operation last week for the first time. In about a month, when the dock will be first operated, it is expected that a company of scientific and shipping men, such as has seldom been brought together by any railroad of like character in the United States, will be present to witness its workings. The machinery attracts great attention. It was built by the Atlantic Works, and is operated in the new 101 x 30 foot building. The equipment consists of a pair of coupled high pressure engines, the first of the kind ever used, each 26 feet in length. They rest on cast iron foundations, each in two pieces, bolted together. On the back of the engines are the crank and speed shafts, each bearing three cog wheels. These vary in size, and any or all of the three on the latter shaft can be thrown at will by means of levers. This gives three changes of speed, the diameter

of the wheels on the crankshaft being respectively as follows: Power wheel, 53 30-100 inches; middle wheel, 40 61-100; quick speed wheel, 26 30-100. There are four railway tracks, each 770 feet in length, with a 35-foot spread between the outside tracks. These support the cradle, 228 feet long and 74 feet wide in the clear. There are 19 standards on either side, with a graduated hight of from 20 to 25 feet, which support a platform for manipulating ropes and blocks that are 3 feet above water when the cradle is clear out. The ways consist of 15 patent bilge blocks on either side.

The Rhode Island Locomotive Works, Providence, R. I., are building a compound locomotive for the Macon Construction Company. This engine is of the eight wheel type, and is intended for fast passenger service

The George H. Corliss Engine Company are working nights, and Fuller's iron foundry is running until 9 o'clock every night on large orders.

The Herreshoff Mfg. Company, of Bristol, R. I., are building the foundation to enlarge their south boat shop, to be of the same length as the north shop, 165 feet.

The compound locomotive which the Rhode Island Locomotive Works, of Providence, R. I., furnished the Union Elevated road in Brooklyn was altered over from the ordinary form with satisfactory results. The original cylinders were 11 x 16 inches, but when compounded they were made 11½ x 16 inches and 18 x 16 inches. The steam on its way from the high pressure to the low pressure cylinder passes through a receiver in the smoke box. The intercepting valve is so arranged that when the engine is started live steam is admitted to both cylinders, and the valve automatically changes its position and causes the engine to work compound, as the receiver pressure is sufficient. Provision has been made, however, for continuing the admission of live steam to the low pressure cylinder for a longer period should the engine be called upon to do some exceptionally heavy work. The engineer controls this matter from the cab, and this probably accounts for the incorrect statements which have been made to the effect that the starting valve had to be operated by hand. The live steam passes through a reducing valve on its way to the low pressure cylinder.

The Maryland Agricultural College, near Baltimore, is preparing to establish machine shops for the use of the students.

A new enterprise for Bristol, Tenn , is to be established by H. T. Farnsworth, of Richmond, Va., and others. It will consist of the manufacture of water wheels, pulleys and cars to be operated by a compressed air motor.

The machine shop of Atzbaugh & Berry, Iron City, Tenn., has been sold to Marsh & Hardwick, who contemplate adding to and improving the plant.

The Fulton Machine Company, with a capital of $33 000, have been formed at Syracuse, N. Y., for the purpose of manufacturing the Kendrick Feed Cutter, the Shepard Pulley, and do general machine and foundry work.

The Ingersoll Milling Machine Company, of Cleveland, Ohio, will remove their plant to Rockford, Ill., at an early date.

The plant of the South Boston Iron Works, at Middlesborough, Ky., will be erected at once. The main building will be 1020 by 150 feet.

The Attalla Foundry and Mfg. Company have been organized at Attalla, Ala., and will erect at once an iron foundry and machine shops that are to cost $25,000.

It is announced at Chattanooga that negotiations are pending with Eastern capitalists looking to the establishment in that city of a $500,000 locomotive works. J. B. Northrop is interested.

The Wheeling and Elm Grove Railway Company will soon begin the erection of machine shops at Wheeling, W. Va.

Machine shops and foundry are to be established at Anniston, Ala., by Higgins & Ferguson.

The Americus Iron Works Company, of Americus. Ga., are preparing to add to their capacity.

A company is being organized at Charlotte, N. C., to establish iron foundry and machine shops.

The machine shops of the South Atlantic and Ohio Railroad, at Bristol, Tenn., were recently destroyed by fire at a loss of $10,000.

The Riverside Foundry of Maher, Brayton & Co., Cleveland, Ohio, was burned on the 17th. Loss, $60,000; insurance, $30,000.

The Chamber of Commerce of Superior, Wis., has appointed a committee to look into the matter of establishing a machine shop and foundry in connection with the Superior Forge Works.

The machine shops of the Georgia Pacific Railroad Company, located at Columbus, Miss., it is announced, are to be removed to Birmingham, Ala., and enlarged.

The Queen and Crescent Route will, it is stated, move their car works and machine shops from Ludlow, Ky., to Chattanooga, Tenn., and will erect new and enlarged plant, doubling the capacity of the round house.

The Laredo Foundry and Machine Company, of Laredo, Texas, have sold their plant to R. E. Sanford, of Columbus, Ohio, who will put in nearly $10,000 worth of additional machinery.

A company with a capital stock of $220,000 is reported organizing at Suffolk, Va., to establish boiler and engine works.

Negotiations are reported to have been successfully terminated at Glasgow, Va., for the establishment of machine works for the manufacture of sugar mill machinery.

A meeting of the stockholders of the Braddock Wire Company, Braddock, Pa., will be held on December 30, for the purpose of voting on a proposed increase in the capital stock from $300,000 to $500,000.

The Cordele Machine Shops Company have been organized at Cordele, Ga., to erect and operate an iron foundry and machine shops. Tomlin & Harris, lumber manufacturers, are interested in the new company.

The Houston and Texas Central Railway Company are reported to be preparing to move their machine shops from Sulphur Springs to Waco, Texas.

At Lynchburg, Va., the Railway Automatic Signal Company have been organized, with $100,000 capital stock, to manufacture an automatic railway signal recently patented by Alexander Robertson. T. U. Davis is president; T. J. Ingram is secretary.

The Tombigbee Iron Works Company, with a capital stock of $250,000, have been organized at Aberdeen, Miss., by E. M. Ivine, of Grand Haven, Mich., and others. The iron works now owned and operated by Mr. Ivine at Grand Haven are to be moved to Aberdeen and considerably enlarged.

The Sheffield Iron Works have been incorporated at Sheffield, Ala. This corporation will absorb the plant of Gilbert & O'Neil and will enlarge it.

The Grant Locomotive Works, of Chicago, has been the subject of mere talk for so long that in the minds of many there was serious doubt as to whether the works would ever be built. But now the title to the proposed site has been settled by the courts, and the directors have ordered an assessment on the stockholders, so that the erection of the works is sure to follow. They are to be built of a capacity to turn out at least 250 locomotives yearly.

A company has been organized at Carnegie City, Va., with W. A. Carpenter as president and John Fitz as general manager, to operate a foundry and machinery recently erected by these parties.

The Wolf City Iron Foundry, ground for which has been broken at Laredo, Texas, will cost $40,000, and employ 125 men.

An addition 200 x 65 feet is being added to the boiler department of Armstrong Bros., boiler makers, at Springfield, Ohio. The firm have a large number of contracts on hand and are compelled to run a large night force.

The stockholders of the Metal Spinning Company, Peoria, Ill., will hold an important meeting December 13, to take action on an increase in capital stock from $25,000 to $75,000 and to consider a change of name to the Buckeye Mfg. Company. The company also contemplate a change of location and an increase in facilities

The Wilson-Snyder Mfg. Company, of Pittsburgh, have a number of contracts on hand for large pumps, among which are two vertical pumps with a daily capacity of 2,500,000 gallons, for the Lower Union Mill of Carnegie, Phipps & Co., at Pittsburgh; the third pump for the Isabella Furnace Company, at Etna, two others having been already placed in position; pumps for the Iroquois Furnace Company, of Chicago, and the Max Mendows Furnace Company, of New Meadows, Va. The Pittsburgh, Iron and Steel Engineering Company also have ordered pumps for three plants contracted for, one each in W. Superior, Wis.; Ashland, Ky., and Embreeville. Tenn.

A charter has just been issued to the Triple Wire Nail Machine Company for the purpose of carrying on a general foundry and machine business. The principal office will be at Parkersburg, W Va., and the sum of $15,000 has been subscribed to the capital stock, 10 per cent. of which has been paid in. The capital is divided into shares of $100, of which Joseph H. Cole, J. B. Hastings, James A. Wetherell, John A. Hutchinson, Camden Rathbone, T. P. Jeffrey, Okey K. Cole, John W. Dudley, F. E. King and J. W. Vandervort, all of Parkersburg, hold 15 each.

A company with $100,000 capital stock, and of which S. G. Gilmore is president, has been organized at Luray, Va., to erect and operate machine shops, iron foundry and plow works. This town is having a healthy and vigorous growth, under the wise and prudent management of a progressive development company that intends to make Luray an important manufacturing center.

The Broadway Machine Company will, it is reported, move their foundry and machine shops to Luray, Va., and increase their capacity to double that at present. A lock works is also to be established at that place.

Hardware.

The Samson Cordage Works, 164 High street, Boston, Mass., manufacturers of braided sash cord, braided clothes lines, bell cord couplings, cord grips, lariats with metal lined loops, masons' lines, upholsterers' cord, store shade lines, &c., are increasing their plant. They report that they find a large market for their goods with the hardware trade.

The Richardson Mfg. Company, Worcester, Mass., manufacturers of the Buckeye mower, state that in ten years their production has increased 700 per cent., and that they recently doubled their capacity for manufacturing these mowers.

The Chieftain Hay Rake Company, of Canton, Ohio, who have made the Superior saw set about a year, say that the orders for goods are from all parts of the country and that they are kept very busy to meet the demand. Their sales show a large increase during the past six months.

Samuel C. Tatum & Co., Cincinnati, Ohio, refer to the encouraging inquiries which they are having from the trade for their catalogue files. These, with copying presses and other office devices, the above firm make a specialty of.

M. D. Jones & Co., 76 Washington street, Boston, Mass., are manufacturing wire flower stands, wire hanging baskets, lamp brackets, bird cage hooks, copper weather vanes, park and cemetery chairs and vases, lawn sprinklers, &c., also hose menders, medalion brackets and rail brackets. These latter articles are referred to as having features of especial merit.

Loring & Parks, Plymouth, Mass., in connection with their manufacture of tacks, nails, rivets, &c., are putting on the market the Old Colony check perforator, which is described as a safeguard against check raising.

W. B. Carpenter & Co., Bristol, Conn., are manufacturing cathedral gongs for clocks, to which branch of their business they give especial attention. In connection with this line they also make lantern holders, cast iron nuts for drawer pulls, commode buttons, hat pins, &c.

M. C. Henley, Richmond, Ind., manufacturer of roller skates, boring machines and fence machines, is about to engage in the manufacture of lawn mowers. The above goods, however, are referred to as side lines, as he is more extensively engaged in the manufacture of iron working machinery, the Shellenbach pulley lathe more particularly. It is his intention to give the manufacture of iron working machinery almost his entire attention in the future.

Lindsay & McCutcheon, Allegheny City, Pa., are manufacturers of wrought iron washers, hoop and band iron, strap and T hinges, &c. They also galvanize hoop iron to order and manufacture stone and marble saw blades, trunk hinges and coffin braces.

The F. C. Linde Mfg. Company, formerly of Cresskill, N. J., have removed to Freeport, Ill., where a new company has been formed and is doing business under the name of the Barrows Mfg. Company. Their business is brass founders and finishers, manufacturers of locks and bronze hardware.

The Cleveland Galvanizing Works, H. H. Hodell & Co., proprietors, Cleveland, Ohio, are operating a general jobbing shop in the galvanizing line, galvanizing only such work as is sent them. A specialty is made of this kind of work, castings and wire cloth being conspicuous.

The Columbiana Pump and Machine Co., Columbiana, Ohio, manufacturers of all kinds of iron pumps, report that their business during the present season has been very satisfactory, and that the prospects for the future are flattering.

The Detroit Steel and Spring Company, Detroit, Mich., have rebuilt their crucible plant, which was destroyed by fire June 18, 1890. In rebuilding they have enlarged their former capacity. Besides crucible steel they manu-

facture railroad track tools, blacksmith tools, stonemasons' tools and miners' tools, and issue a separate illustrated catalogue showing this line of goods. They state that all warranted tools will be made of their own cast steel and will bear their stamp.

The Eagle Spring Gun Company, Hazleton, Pa., are manufacturing combined sink supporters, Eagle spring gun, Smith's Common Sense broom holder, and Yakel's egg detectors. These goods are made and controlled by this firm.

The Sidney Steel Scraper Company, Sidney, Ohio, now have in operation a heavy drop press, used for stamping out wheelbarrow trays and scraper bowls from a single piece of steel. They are making several kinds of barrows for general purposes, mining, stone, pig iron and barrows with steel bottom and movable sides. The wheel is of new design and particularly strong. They report trade for the past season as exceptionally good, showing a marked increase over the two preceding years, with indications for the coming year of a still larger increase. They issue illustrated circulars of drag and wheel scrapers and all-steel oscillating bob sleds.

The Wheeler Patent Can Opener, manufactured by the Wheeler Can Opener Company, St. Louis, Mo., is referred to as meeting with a satisfactory sale, as it is practical in its working and adapted to opening cans of all sizes and shapes. It can also be used, we are advised, to cut stove pipe, and many are sold for this purpose.

St. Louis Screw Company, manufacturers of the well known Top of the Hill hog rings and ringers, have received an order for 600,000 binding posts from one concern. This is an unusually large order, and the fact that they were able to secure the order in the face of sharp competition speaks well for the house. We are informed that with the new and improved machinery which they have recently added to their plant they are in a position to bid on all work of this class. Their screw business is large and shows a gratifying increase over the same period one year ago.

Miscellaneous.

The McGuire Mfg. Company are adding three stories to their factory on North Sangamon street, Chicago They manufacture street car trucks and a patent grain door for freight cars.

The Hartford Rubber Works Company, Hartford, Conn., manufacture principally bicycle tires, pedal rubbers and handles, also special work for mechanical purposes. Their leading staples are rubber tubing, anti-rattlers and corks, and they also execute special orders for a high grade of rubber hose.

In a fire at Nashville, Tenn., about the middle of October, finished parts of Tennessee wagons, manufactured by the Kentucky Wagon Mfg. Company, were destroyed, and until those parts can be replaced the Nashville stock will not be available in filling orders. Until these are supplied, all orders for Tennessee wagons should be sent to their main office at Louisville, Ky.

Lovell, Tracy & Co., Hartford, Conn., are manufacturing specialties for the hardware, agricultural implement and harness trades. A prominent feature of their business is the production of oils and lubricators. These are put up in attractive form in tin packages of various sizes, with screw caps, and in desirable cases, spouts being fastened to the caps. Among these oils and lubricators are their Little Giant lubricator, Climax mowing machine oil, Charter Oak Harness oil, Axleine and Castroleum. Each of these articles has features which the manufacturers state will recommend them to continuous consumers.

The Richmond Standard Spike and Iron Company have been chartered at Richmond, Va., with a capital stock of not less than $12,000 nor more than $240,000. The object of the concern is to manufacture iron and railroad supplies, spikes, &c.

The capacity of the Towers & Sullivan Mfg. Company's plow works, at Rome, Ga., is to be largely increased, and much new and improved machinery added.

Among recently authorized corporations in Illinois are the following: Chicago Steel Bolster and Axle Company, at Chicago, to manufacture wagons and all appliances therefor; capital stock, $10,000; incorporators, John S. Wayman, C. B. Samson, Luther P. Friestedt. Velocity Mfg. Company, Chicago, to manufacture and deal in bicycles, tricycles and other motive and mechanical devices; capital stock, $25,000; incorporators, Harry C. Goodrich, Charles R. Webster and Timothy F. Mullen. Fuller Watchman's Electrical Detector Company, Chicago, to manufacture electrical machinery and appliances; capital stock, $200,000; incorporators, Isham D. Fuller, William D. Carlisle and E. S. Bottum. The Wilson-Hall Mortising Machine Company, Chicago, to manufacture mortising machines; capital stock, $200,000; incorporators, Henry J. Hayward, Thomas N. Wilson and Alonzo J. Hall.

The National Safe Deposit and Vault Mfg. Company, of Pittsburgh, Pa., are now having built at the works of the Griffin Car Wheel Company, Detroit, Mich., a 300-ton safety deposit vault possessing unusual features. The weight of the vault will be nearly 300 tons, and the inside dimensions are: 11 feet high, 11 feet 4 inches wide, and 22 feet 8 inches long, with a capacity for 2500 deposit boxes. The two doors slide on anti-friction steel rollers, are 12 inches thick, and weigh 6 tons each. The vault, which is intended for the Farmers' Deposit National Bank, of Pittsburgh, will be ready for shipment in a few days, and will require 18 flat cars to carry it to its destination. The contract price of the vault is $42,000.

Broderick & Bascom Rope Company, St. Louis, Mo., recently shipped from the works in North St. Louis what was probably the heaviest single carload of freight ever carried by any railroad company in the United States, and probably in the world. The load consisted of two wire cables, weighing 140,000 pounds, and was shipped to the Cleveland City Railway Company, Cleveland, Ohio, via the Wabash Railroad.

The Sequachee Agricultural Implement Works have been organized at Sequachee, Tenn. The new company have a capital stock of $100,000, and will begin pretty soon the erection of their plant.

A $50,000 company has been organized to establish agricultural implement works at Buchanan, Va.

Iron ore lands near Dayton, Tenn., belonging to the Dayton Railway, Land and Improvement Company, are to be developed by the company.

The Sequachee Mfg. Company, of Sequachee, Tenn., are building a sewing machine factory. This company have a capital stock of $100,000, and will also manufacture knitting machinery.

The mineral lands of Western Texas are attracting attention, and within the past few weeks two mining companies have been organized to commence the work of development. One of these is the Cibalto Creek Mining Company, with a capital stock of $10,000,000, and the other is the Presidio Mining Company, with a like capital stock. Both of the companies are backed by California capitalists.

It is stated that negotiations are pending between C. P. Huntington and others for the purchase of the Ensign Mfg. Company's plant at Huntington, W. Va. These car works are said to have originally cost $2,500,000.

At Beaumont, Texas, capitalists from New England have incorporated the Beaumont Car Works Company, to establish car works.

The United States Rolling Stock Company, of Anniston, Ala., announce their intention of increasing the already large capacity of their car works.

The Virginia Car Works Company have been incorporated at Buena Vista, Va., with a capital stock of $1,000,000, to erect and operate car works in that place. Col. A. S. Buford, formerly president of the Richmond and Danville Railroad Company, is president of the company, with F. H. Foster, of Glasgow, Va., as vice-president and Charles Conway secretary.

The Piedmont Land and Mfg. Company have been incorporated at Winston, N. C., with a capital stock of $500,000. E. H. Stewart, Roanoke, Va., is president. The purpose of the company is the purchasing of mineral properties and their development.

At Baltimore, Md., the Blondell Mfg. Company, with a capital stock of $200,000, have been incorporated by J. M. Blondell, T. E. Hambleton, W. A. House, Jr., and others, to establish works for the manufacture of cars for electric, cable and horse lines.

A company with a capital stock of $1,000,000 is being organized by R. H King, of Kansas City, Mo., and parties from Lynn, Mass., who have recently purchased 175,000 acres of mineral and timber lands in Yancy and Madison counties, in Western North Carolina. This is a rich mineral region, and it is the purpose of the new company to build an industrial town and establish manufacturing enterprises.

The Virginia Investment and Development Company have been incorporated at Buena Vista, Va., with a capital of $1,000,000. J. W. Blackburn is president, T. L. Alfriend is vice-president and J. T. Stuart secretary.

The Wythe Lead and Zinc Mining Company, of Ivanhoe, Va., have recently commenced the development of iron properties in that vicinity.

Norfolk, Va., has placed herself in the line of industrial progress by organizing the Norfolk Industrial Development Company, for the purpose of fostering manufacturing enterprises. The company have a capital stock of $500,000, and the officers are: Barton Myers, president; T. F. Rogers, vice-president, and Parke Poindexter, secretary.

The Cornelia Iron Mines, near Luray, Va., have been sold to parties from Baltimore for $5000. The property will be developed.

The Pennsylvania Investment Company, with a maximum capital stock of $150,000, have been incorporated at Buena Vista, Va., to engage in manufacturing, develop mines and deal in mineral and other properties. The officers are S. F. Kelly, president; C. W. Keander, vice-president, and O. S. Keely, secretary.

New Castle, Va., aims to become one of the very liveliest manufacturing towns in Virginia. An especial effort is being made to establish a number of small industries of an iron nature, such as tack factories, nail works, hardware novelties, bolt and nut works, axe and stove foundries, tool works and the like. Negotiations are said to be pending for several of these enterprises. A. E. Humphreys is at the head of the development work at New Castle.

The Hought survey of mineral lands, comprising many thousand acres of valuable mineral bearing properties located in the vicinity of New Castle, Va, has been purchased by A. E. Humphreys for $400,000.

A company is reported organizing at Bedford City, Va., for the purpose of manufacturing wire fences.

A company, with a capital stock of $50,000, have been organized at Buchanan, Va., to establish agricultural works at that place.

THE WEEK.

The old Warwick furnace, where the first cannon used in the Revolutionary War were cast, was sold last week. It is in Chester County, Pa. Many cannon were buried in the adjacent swamp to save them from the enemy.

Sixteen large cylinders for United States cruisers have been cast at the Brooklyn Navy Yard without the slightest defect.

The chances are supposed to be bad for the success of the Subsidy bills at the coming session of Congress.

The plans of certain new vessels for the United States Navy have been based on English designs, but in every case the frames have been strengthened, so that the calamity which befell the British cruiser Serpent need cause no fear of a repetition on this side of the water.

The Ship Canal Commission, which has in charge the preparation of a report to the Pennsylvania Legislature on the feasibility of a ship canal to connect the Ohio River and Lake Erie, have prepared their maps and plans of the route. The line of the canal will be 102 miles long, which is only 12 miles longer than an air line. The maps also show the obstacles and obstructions to be overcome. The deepest cut will be near the crossing of the New York, Pennsylvania and Ohio Railroad, near Sharon, and a few miles south of that is a deep ravine which will either have to be bridged by an aqueduct or the route of the canal will have to be run several miles to the eastward. The secretary of the commission, Eben Brewer, of Erie, said that the canal would probably cost $26,000,000

Secretary Blaine says the United States Government contemplates no measures of retaliation against Canada. As respects the rights of Canadian railroads on United States territory, a question that has been pressed upon the attention of Secretary Windom by representatives of rival American roads, no decision is expected at once. It will probably remain for Congress to change the existing practice if it sees fit to do so by positive legislation.

A noteworthy characteristic of the six great vessels for the United States Navy, for which contracts have lately been given

out, is their total lack of sail power. They are to have military masts for secondary batteries and for signal purposes, but no yards and no canvas. This is true of the three great battle ships, the 8100-ton armored cruisers and the 7300-ton and 5500-ton protected cruisers. The military masts of the new battle ships have even no shrouds or stays, being expected fully to support themselves. In this respect they will differ from the newest war vessels yet completed, having military masts only.

The tin and sheet iron workers, of this city, have established an evening class for their young members, to teach them the most difficult parts of their trade in cutting and drafting. The various foremen belonging to the union have volunteered to take charge of the class by turn without any compensation, and the classes will be free to the members. The organization numbers 500.

The Builders' Exchange, of Pittsburgh, have formed a strong organization to fight labor unions. George S. Fulmer, a prominent contractor, was elected chairman. He is the originator of the plan, and explained that the contractors in the various lines of trade were practically at the mercy of labor unions, and that as a means of protection they should continue in an organization, and thus be able more successfully to deal with the demands made by the labor unions.

The Dutch Government has ordered Ellis' compound armor plates for two new battle ships building at Amsterdam British naval critics call attention to this order, as showing that the recent American decision in favor of all steel plates has not shaken European belief in the superiority of the compound armor manufactured in Sheffield.

Master Workman Powderly, of the Knights of Labor, was re-elected by the convention at Denver, without opposition.

The Colorado mineral palace, now nearly completed at Pueblo, will be one of the wonders of the West. Representatives of the several mining districts are contributing specimens to be used as materials of construction and for decoration. Marble, granite and ornamental stones in profusion enter into the general plan of exhibition, the design of which is to indicate the natural richness of the Rocky Mountain region.

Plans for an elevated railroad in Boston have been approved.

Fall River mills, with a capital of $18,778,000, paid in dividends during the year ended November 1, $1,414,270.

Master Workman Powderly, in his annual report, says he objects to strikes, but firmly believes in organization.

A wheat blockade is feared in the Northwest. It will take 58,000 freight cars to move the crop of the Red River Valley.

An area of 200 square miles of pine lumber has been discovered at the southern end of Hudson Bay, but at present is cut off from market by the difficulties of transportation. Many more such are believed to exist in Upper Canada, a region almost unknown.

Contracts have been given out for the construction of the Third avenue cable railroad and work has already commenced. The whole eight miles from the post office to Harlem Bridge must be completed by October 1, 1891. The most striking change will be the running of street cars in trains. They will run at different rates of speed in different parts of the city, the lowest ordinary rate being six miles an hour and the highest nine miles per hour. J. Wharton, Jr., of Philadelphia, has charge of the entire change of system with the exception of the power houses and their equipments. From a mechanical point of view the most interesting feature is a big loup at the post office with a 41-foot radius, the cable going around it on horizontal pulleys. From Grand street down the plan contemplates three cables, two of them fast, with drums 16 feet in diameter, that of the slow cable will be only 13 feet in diameter. Thus they can take the same power, and the difference in diameter of the drums makes the difference in speed.

Kentucky tobacco growers have combined against the Warehouse trust, alleging that the latter aspire to control both prices and product. The growers, therefore, will erect independent warehouses at central points.

The British torpedo cruiser Serpent was lost on the rocks off the coast of Spain. Out of a total of 250 souls on board only three were saved. The Serpent was a twin screw vessel of 1770 tons and 4500 horse-power. She carried six guns. This was her maiden voyage. Admiral Eliot says the Serpent was a unique specimen of the "shoddy built" ship. She had absurdly powerful engines in a frail frame.

Parties representing the Canada Copper Company and others have petitioned the Dominion Government for a ten years' guarantee of $5,000,000 to build a railroad which would admit building a plant for manufacturing nickel steel at Sudbury instead of merely exporting nickel ore. One of the persons named is S. J. Ritchie, of Akron, Ohio.

Colonel Hope, of London, has returned to Ontario from Sault Ste. Marie, and reports favorably of the project to utilize the enormous water power available at that point. The syndicate he represents propose to erect various kinds of mills and works on the spot. The first enterprise spoken of is shipbuilding.

The reckless cutting of rates by Western railroads is due in no small measure to the rivalry of vessels on the Northern lakes. The trunk lines nearest are forced to meet this competition or abandon the field, and the operation of the Interstate Act tends to compel other railroad routes to adjust their rates according to those charged by the lines exposed to the worst competition Thus, it would appear, inferentially, that the recent wonderful enlargement of the lake marine is one of the most potent influences contributing to railroad demoralization, non-remunerative rates of transportation and consequent disturbance in monitary affairs. Railroad managers now propose by a sudden advance in rates to recoup recent losses.

The new Brazilian tariff went into effect 15th inst. The principal change affects the coarser grades of cotton and woolen goods, on which import duties are nearly doubled.

A new elevator, of 1,500,000 bushels capacity, for the New York Central Railroad, has just been completed at Sixty-first street, North River. Its chief feature is the solid iron posts that form the rib work of the building, each composed of several lesser ones riveted together and towering 150 feet to the roof. There are 30 rows of them—120 columns in all. The doors leading from the tower to the elevator are of iron, likewise the big doors that close the arched entrances for the trains. The 250 or more windows have sheet iron shutters, which are opened and closed by machinery.

Senator Sherman is forecasting the action of the extreme silver men. He presumes they will insist upon free coinage, but does not believe the House will stultify itself by agreeing to such action. The effect of free coinage, in his opinion, "would be to lower the price of silver bullion and also to drive gold practically out of the market." The silver men, of course, believe to the contrary.

Captain Trivier, the French explorer, will leave on November 20 on a voyage along the west and east coasts of Africa for the purpose of inquiring into the commercial resources of the various ports. He will visit all the towns of commercial importance, especially the Portuguese colonies, which are friendly to France.

Owners of boats on the Erie Canal complain of having had an unprofitable season, on account of the lack of business. Grain is not coming forward from the West, in the absence of an export trade. Another cause of dullness is the fact that railroads have been carrying grain very cheap, and the canals lose a large portion of the trade as a result of this severe competition. It has been demonstrated that steam is the most profitable motive power, but the shallow water in the canals is very unfavorable to increasing the volume of business. The depth is supposed to be 7 feet, but it is really scarcely 6 feet, and should be at least 8 feet. All the locks should be lengthened.

Large purchases of coal lands in the region penetrated by the West Virginia Central Railroad, have been made recently by New York capitalists and others well known, and measures are being taken to open a wide extent of country rich in raw material, which will be valuable to manufacturers in Pittsburgh.

United States Consul Griffin, of Sydney, in a report on the silver mines of Australasia, refers to the extraordinary rise in the price of silver incident to the enactment of the new Silver law in the first session of the Fifty-first Congress. He states that the advance in the price of silver had increased the annual value of the silver product of New South Wales alone more than $1,946,600 at the date of his report; that in three days the price of silver had risen from 85 cents per ounce to 91 cents, and was then quoted at $1.10 per ounce, and that this advance would be likely to have a marked influence upon the trade relations between Australia and the Eastern countries, and might result in the establishment of a direct exchange with China and Japan. The Broken Hill Mine is the largest in those colonies and the product in 1889 was valued at $9,600,000.

The Pennsylvania Canal Commission will report favorably to the next Legislature for the construction of the ship canal from Lake Erie to the Ohio River. A route 125 miles long has been selected. The cost is estimated at $23,000,000.

A railroad direct to the Texas iron fields in Llano County will soon be built.

Brazil will commence the conversion of her national debt in 1891.

A centrifugal machine for the manufacture of sugar has been invented by Robert B. Lafferty, of Philadelphia, which he claims will revolutionize the business. It is "continuous draining," works automatically and is said to do the work of ten ordinary machines.

A novel feature is the shipment of a cargo of petroleum barrel staves from Newport News to Bremen, where a petroleum cooperage factory has been established.

Mexican cotton mills are manufacturing on so large a scale that importations of unbleached goods from England have almost ceased; but the Central American republics during the last nine months imported nearly 8,000,000 yards. Mexico is importing iron and steel in excess of last year.

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The Protection of Trade-Marks.

Manufacturers who produce goods protected by trade-marks will do well to carry out the instructions just issued by the Treasury Department. The seventh section of the new Tariff bill contains the following provision:

SECTION 7. That on and after March first, eighteen hundred and ninety-one, no article of imported merchandise which shall copy or simulate the name or trade-mark of any domestic manufacture or manufacturer, shall be admitted to entry at any custom house of the United States. And in order to aid the officers of the customs in inforcing this prohibition, any domestic manufacturer who has adopted trade-marks may require his name and residence and a description of his trade-marks to be recorded in books which shall be kept for that purpose in the Department of the Treasury, under such regulations as the Secretary of the Treasury shall prescribe, and may furnish to the Department *fac-similes* of such trade-marks; and thereupon the Secretary of the Treasury shall cause one or more copies of the same to be transmitted to each collector or other proper officer of the customs.

In accordance with the mandatory provisions of this section, the Secretary of the Treasury has issued to the officers of customs instructions which clearly state the requirements which manufacturers must meet. Applications for recording trade-marks addressed to the Department must mention the name and residence of the manufacturer and must furnish a description of the mark. They will not be received unless they are accompanied with the proper proof of ownership, which must consist of the affidavit of the owner or one of the owners certified by a notary public. The applicant must state the names of the ports to which *fac-similes* of the trade-mark are to be sent by the Department and must forward a sufficient number of them to enable the Department to send one copy to each port named in the application.

It is somewhat strange that the Department through this method of procedure exposes the manufacturer to a serious danger. If we correctly understand it, his trade-mark will be protected only at those custom houses at which his trade-mark is on file. If the American producer fails to name and does not send a *fac-simile* for every one of the small ports, some of which few people know, his foreign imitators may enter goods without detection. A simple modification of the procedure adopted would overcome the difficulty. The Department should ask the manufacturers to send a specified minimum number of *fac-similes*, and should itself take care of their distribution for register to every one of the ports.

We print below, for the convenience of the readers of *The Iron Age*, as complete a list of the customs districts and ports as is available:

Customs Districts and Ports.

Alaska, Alas.
Alexandria, Va.
Aroostook, Maine.
Atlanta, Ga.
Baltimore, Md.
Bangor, Maine.
Barnstable, Mass.
Bath, Maine.
Beaufort, S. C.
Belfast, Maine.
Boston and Charleston, Mass.
Brazos de Santiago, Texas.
Bridgeton, N. J.
Brunswick, Ga.
Buffalo Creek, N. Y.
Cape Vincent, N. Y.
Castine, Maine.
Champlain, N. Y.
Charleston, S. C.
Chicago, Ill.
Cincinnati, Ohio.
Columbus, Ohio.
Corpus Christi, Texas
Cuyahoga, Ohio.
Delaware, Del.
Denver, Col.
Detroit, Mich.
Dubuque, Iowa.
Duluth, Minn.
Erie, Pa.
Evansville, Ind.
Fairfield, Conn.
Fall River, Mass.
Frenchman's Bay, Me.
Galveston, Texas.
Genesee, N. Y.
Georgetown, D. C.
Gloucester, Mass.
Hartford, Conn.
Huron, Mich.
Indianapolis, Ind.
Kansas City, Mo.
Kennebunk, Maine
Key West, Fla.
Louisville, Ky.
Machias, Maine.
Marblehead, Mass.
Memphis, Tenn.
Miami, Ohio.
Michigan, Mich.
Milwaukee, Wis.
Minnesota, Minn.
Mobile, Ala.
Montana and Idaho.
Newark, N. J.
New Bedford, Mass.
Newburyport, Mass.
New Haven, Conn.
New London, Conn.
New Orleans, La.
Newport, R. I.
Newport News, Va.
New York, N. Y.
Niagara, N. Y.
Norfolk, Va.
Omaha, Neb.
Oregon, Ore.
Oswegatchie, N. Y.
Oswego, N. Y.
Pamlico, N. C.
Paso del Norte, Texas, and New Mexico.
Passamaquoddy, Me.
Pensacola, Fla.
Perth Amboy, N. J.
Philadelphia, Pa.
Pittsburgh, Pa.
Plymouth, Mass.
Portland and Falmouth, Maine.
Portsmouth, N. H.
Providence, R. I.
Puget Sound, Wash.
Richmond, Va.
St. John's, Fla.
St. Joseph, Mo.
St. Louis, Mo.
Salem and Beverly, Mass.
Saluria, Texas.
San Diego, Cal.
Sandusky, Ohio.
San Francisco, Cal.
Savannah, Ga.
Stonington, Conn.
Superior, Mich.
Teche, La.
Vermont, Vt.
Waldoborough, Maine
Willamette, Ore.
Wilmington, Cal.
Wilmington, N. C.
Wiscasset, Maine.

PORTS.

Albany, N. Y.
Wheeling, W. Va.

The list which was taken from one of the recent Government publications, embraces 105 customs districts and ports. It is possible that some have been added since. We question whether there is one in a hundred business men, who could have named the majority of them.

The impression has been created by the rapid increase in the number of large fire proof buildings in our leading cities that the consumption of iron and steel beams must have developed at a tremendous rate. So far as we can learn that is not the case, the production being at the rate of about 100,000 tons per annum, while it was 90,000 tons two years since. As compared with the consumption of barb wire, tin plate or nails this quantity is very moderate indeed. It sinks into insignificance beside the demand for rails or pig iron for foundry purposes. It has been urged that the consumption of beams would increase enormously were the price lower. In Germany, where the demand is far more widespread, the beam manufacturers have adopted a simple method of introducing their wares. The village builders have been accustomed to follow certain rules based on experience for determining the dimensions of the timber used for certain spans. The rolling mills got out books giving the exact equivalents in strength of the different sizes of sticks of timber so used, with the price of the steel beam, delivered. Thus the small builder is placed in the position to tell at a glance whether it is cheaper for him to supplant wood with steel. It is reported that the consumption for small buildings has grown in an extraordinary degree. Still, we question whether such a result could be reached in this country, because the relative cost of timber and steel is quite different. How it will be upon completion of the increased capacity for manufacturing beams now being provided is another question. The trade looks forward to a lowering in prices when the additions to plant are completed.

Gun Manufacture and Corner Lots.

If it were not dangerous the eagerness of some of the Southern journals over the possibility of securing a gun manufacturing plant, would be amusing. In August the President was authorized to appoint a board to "inquire into the facilities for producing steel forgings for high power guns at or near the Pacific Coast in the vicinity of Rock Island Arsenal, and in the vicinity of Indianapolis Arsenal, and at some point on or near the Gulf Coast, and the advisability of erecting gun factories for finishing and assembling high power guns, to be mounted in fortifications at the Benecia arsenal in California, or at the Rock Island Arsenal, or at the Indianapolis arsenal, or at some point on or near the Gulf Coast." This board has been organized, and as a preliminary step, has issued a circular letter defining the requirements to be met.

It is not our purpose to go into the discussion of the question which section of the country can put forward claims worthy of thorough consideration. We must, however, warn the citizens of any section against wild exaggerations as to the benefit which the establishment of gun forging and finishing plants would confer upon it. Such talk is absurd, like the following, indulged in by a contemporary which is acquiring an unenviable reputation for senseless booming. "Wherever these mammoth plants shall be erected, either apart or together, there will be a center of industrial activity unlike any other in the South." "The consumption of fuel and ore will be enormous."

A few facts will quickly prick such a bubble. Bethlehem has an enormous gun plant, in which millions have been spent. Yet it has remained an industrial city of moderate proportions and has escaped a real estate boom on the strength of its acquisition. Washington and Troy have great finishing shops, and yet the former has acquired no claims to industrial pre-eminence, while the latter has not been compensated by it for the loss of some of its industries.

So far as tonnage of ore and fuel are concerned, any rail mill now running in the United States calls for more in a week than a gun foundry would use in a year. There is not a single puddle and rolling mill in the South which does not, running full,

consume more pig than such an establishment, which would, as a possible maximum, not use 10,000 tons per annum.

The investment of money in plant, tools and equipment must necessarily be very great—probably near $5,000,000—but the tonnage of materials is very small and the number of men employed moderate. A gun foundry will do little good as a prize for corner lot boomers.

The Collapse of South American Investments.

The fact is generally recognized that the financial troubles in Great Britain during the last few days, affecting even the Bank of England and hazarding the existence of the great banking firm of Baring Brothers, have their origin in, if indeed they were not directly precipitated by, reckless investment on an enormous scale in the Argentine Republic. Outside of England capitalists have looked with astonishment and apprehension upon the magnitude of operations in South America, not to speak of millions sterling apparently sunk beyond hope of recovery in speculative enterprises in both hemispheres and in every continent. The results are now witnessed in the overloading of markets at all the great financial centers with securities of a doubtful character, which no amount of credit is fully able to protect. The first severe squeeze in money brings the whole financial fabric to the verge of disaster. Some indication of the extent of British investments in various schemes appears from a compilation just published in the *Investor's Monthly Manual*—an offshoot of the London *Economist:*

The unredeemed South American loans amount to £145,000,000, South American railroad investments to £58,000,000 and nitrate mines to £3,500,000. The South African mines represent £10,000,000 and trust companies £60,000,000. At the highest average point this year, the total value of these investments was £291,400,000; their value on October 31 had fallen to £233,600,000, a shrinkage of no less than £57,800,000 on the above groups alone. The following table shows the division of this:

	Highest value.	Value. Oct. 31.	Shrinkage.
South American loans, &c.	£120,300,000	£101,500,000	£18,800,000
South American railroads	66,700,000	56,800,000	9,900,000
Nitrate mines.	5,400,000	2,600,000	2,800,000
South African mines	30,000,000	11,500,000	18,500,000
Trust companies.....	69,000,000	61,200,000	7,800,000
Total... ..	£291,400,000	£233,600,000	£57,800,000

The South American figures are exclusive of investments in "cedulas" other than the 7 per cent. National Cedulas, this being the only issue included in the *Manual*; but British "cedula" investments are estimated to exceed £100,000,000. The shrinkage in the value of these this year is probably not less than £30,000,000, so that the difference between the average highest and the latest reported prices of the securities reviewed above is but little short of £90,000,000.

It is not surprising that all the resources of the Bank of England and of the great private banking houses were put under trial in a single grand effort during the past week to avert a financial disaster so vast and far reaching. When it is remembered that the firm of Baring Brothers was among the foremost to commit itself in support of South American loans, immense railway enterprises and various schemes more or less visionary in their character, it is not surprising that trouble ensues. One fact that comes out incidentally, and that Americans cannot but recognize with satisfaction, is the comparatively strong position of New York as a financial center, even when contrasted with institutions in the Old World hitherto looked upon as impregnable. Bearing on this point, Henry Clews, in his letter of Saturday afternoon, said: "The great advantage which London, up to this date, has had, and which has given her the recognition everywhere as being the great money center of the world, has been mostly due to the world-wide A 1 credit of the London banking firms. Pre-eminently at the head of these was Baring Brothers & Co. These great financial houses have had to do with all parts of the world, and have attracted all classes of business transactions to London as headquarters, and thus made that city the world's clearing house. The present shake up in London will the sooner place New York City as head financial center, in place of London. The great resources and present sound condition of business affairs in this country generally will soon warrant it."

The Farmers' Warehouse Scheme.

The country has been compelled by the result of the recent elections to give serious attention to the claims of the farmers. In a number of States they hold the balance of power, and in a few they are in absolute control of the official machinery. Their spokesmen insist that in the course of the next two years the fact will be made apparent that the farmers' vote is a power which must be heeded. If the farmers of the whole country do as their leaders propose they shall there will be no question about political control, as they outnumber all other classes of voters. They have overthrown parties before, when they had special grievances to correct, but at no previous time was a genuine farmers' movement so well defined as now. They demand that certain questions shall be taken up seriously, and they are making these questions issues to be decided on a square test.

The first question is the expansion of the currency. The farmers believe that we do not have money enough. They point to the low per capita of currency now in circulation in this country as compared with the high per capita in European countries, and claim that this is the true reason of the depressed price of farm produce. As more money could not possibly make things worse and might make them better, they demand more money. The high prices of the fall of 1890 are regarded as exceptional, and due to circumstances which may not be repeated next year. They are in search of a remedy which will be broad in its scope and deep seated in its effects. The free coinage of silver will probably be the only thing that will satisfy them as a good start. If it does not have the desired effect an attempt will be made to inflate in other directions.

The grandest scheme, however, which they propose to make a live issue, is their warehouse scheme. They insist that the United States Government shall establish in the various States depositories or warehouses in which the farmers may store their crops and hold them until a good demand arises, meanwhile receiving loans from the Government at a low rate of interest on the security thus deposited. Wheat, corn, tobacco, cotton, flaxseed, barley, beef, eggs, potatoes, cabbage, turnips, &c., would constitute the security thus placed in the hands of the Government at innumerable points throughout the country. The warehouses would have to be located conveniently, for farmers could not afford to haul their crops long distances or to glut a locality with too great an accumulation. The patrons of these warehouses would store their products in them until they found a good market, when they would sell out and return to the Government the money it advanced.

The whole warehouse scheme is so visionary that it can hardly be discussed. It is amazing to think that intelligent farmers will permit themselves to be deluded to support such a chimera. Cotton planters can readily see how such a scheme would be feasible if confined to cotton. Wheat growers could probably see a chance for them to reap great benefit from the establishment of Government warehouses. Growers of corn, oats, barley and seeds generally would be able to realize substantial advantages. But they could not be favored at the expense of other classes of farmers, whose interests are equally entitled to be fostered and nurtured. To warehouse nearly everything produced on farms would present difficulties, both administrative and financial, that would be simply paralyzing.

But if the farmers were to succeed in forcing the adoption of such a measure, could they resist its extention to other classes of producers? Warehouses for agricultural products would then mean warehouses for manufactured products—boots and shoes, pig iron, furniture, gloves, locomotives, cloths, anything representing labor and money. Manufacturers would clearly be entitled to Governmental assistance in times of depression as well as farmers. Their wares, too, could be more easily handled and stored with less danger of deterioration or damage. A warehouse for one class would mean warehouses for all. There could be no distinction. Evidently the proposition is absurd and untenable and the farmers will have to adopt some other scheme as an issue to bind their forces together.

Coke Rates.—The Interstate Commerce Commission is after more railroad offenders. It is now pushing the charges of manipulation on coke rates against the Pan Handle and others. Last July the Central Traffic Association Inspection Bureau found the Pan Handle guilty of the

following: The rate on coke from the Connellsville region to Joliet via Chicago was $2.75 per ton, the proportion from Chicago to Joliet being 40 cents. Coke was consigned via the Pan Handle from Connellsville to the Illinois Steel Company, at Joliet, but was diverted to the mills in Chicago. All such diverted coke took the proportion of the through rate, $2.35, instead of the regular local rate. This difference in rates was not very great, but the large tonnage made it amount to about $4000, as reported by the inspection bureau. All such charges were illegal, however, as the full local rate should have been charged. The penalty, under the amended Interstate Commission act, is a fine of $5000 and two years in the penitentiary to every person conniving at the manipulation. The Interstate Commerce Commission has retained George Inham to prosecute the matter. It came up before the United States Grand Jury to-day, General Manager Chappell, of the Alton, and Chairman Midgely, of the Southwestern Division of the Western Freight Association, being witnesses. It is practically certain an indictment has been found.

OBITUARY.

GEN. JACOB W. HOYSRADT.

The death of Gen. Jacob W. Hoysradt occurred at his family residence in Hudson City the 15th inst. For a lifetime identified with its corporate and private institutions in an official capacity, he was one of the most prominent and esteemed citizens. He was descended from an old Dutch family and was born in Ancrom, Columbia County, March 8, 1824. The little education he had he obtained in the public schools. In his early life he was a clerk, but natural thritt, united with sagacity, enabled him to become financially independent at an age when most men scarcely realize the value of money. He was one of the original stockholders of the Hudson Iron Company, and at the time of his death was one of its trustees and president. He was also a director in and president of the Farmers' National Bank of Hudson, a trustee of the Hudson City Savings Institution and president of the State House of Refuge for Women at Hudson. From 1869 to 1877 he was Postmaster of Hudson, and in 1879 was appointed by Governor Cornell Paymaster General on the Governor's staff. As Paymaster General of the State, General Hoysradt accomplished valuable work, which has proved of permanent and substantial benefit to the National Guard. General Hoysradt's son Albert, is Judge Advocate on the staff of Gen. Amasa Parker, commanding the Third Brigade, National Guard.

DANIEL RUNKLE.

Daniel Runkle, who after an illness of 18 months died of heart failure on Monday morning, at the residence of his son, H. G. Runkle, Plainfield, N. J., was president of the Warren Foundry and Machine Company, of Phillipsburg, N. J.; president of the firm of Runkle, Smith & Co., at 15 Wall street, this city, chartered nine months ago, to put in water works in Havana, Cuba, and a director in the Easton (Pa.) National Bank. He was born 67 years ago in Asbury, Warren County, N. J. The Warren Foundry and Machine Company was started by Mr. Runkle in 1856, and was made into a stock company in 1860. Mr Runkle once owned the Keystone Furnace in Pennsylvania.

FREDERICK TUTTLE.

It is quite a coincidence that two of the men connected with the early days of the house of Hibbard, Spencer, Bartlett & Co., of Chicago, should die within ten days of each other. F. F. Spencer died on the 1st inst., and Frederick Tuttle followed him on the 10th. Mr. Tuttle was born in Oneida County, N. Y., October 26, 1808. He removed to Chicago January 3, 1836, and at once assumed control of a stage line between there and Detroit. In 1842 he opened a grocery store at 68 Lake street, and in 1850, with Jonathan Brown, took charge of the City Hotel, which was operated by them until 1853, when they leased the Sherman House. In 1857 Mr. Tuttle became a member of the hardware firm of Tuttle, Hibbard & Co., out of which grew the present firm of Hibbard, Spencer, Bartlett & Co. Thirty years ago Mr. Tuttle retired from active business and has since then devoted himself to caring for the property interests which he had acquired. He was one of the "pioneers" of Chicago, that honorary title being conferred on all citizens who can date their residence in the city to some time prior to 1840. Mr. Tuttle had a wide circle of friends and acquaintances, and was highly esteemed for his many virtues.

LOUIS KRUSE.

The death of Louis Kruse, president of the Kruse & Bahlmann Hardware Company, Cincinnati, Ohio, on November 8, is announced. Mr. Kruse was in the sixty-first year of his age. He was born October 18, 1830, in Diepholz, Germany, and at the age of 13 embarked with his parents for America. After having been in New Orleans for a short period he drifted to Cincinnati where he settled in January, 1844. His school education in this country was limited to six weeks, and in the early days of his boyhood he began the struggle for existence. At 16 he was apprenticed as a hardware clerk and in 1851 he established himself in business on Main street near Woodward. In 1858 he associated himself with Albert Bahlmann, since deceased, and founded the firm of Kruse & Bahlmann. This firm was continued under this style until 1888 by Mr. Kruse and Herman Bahlmann, his former partner's brother, when it was succeeded by the Kruse & Bahlmann Hardware Company, of which Mr. Kruse was made president. The high standing of this well known firm is regarded as a tribute to its founder's untiring energy and marked business ability. He also occupied several positions of trust, having been treasurer of the German Immigration Society, vice-president of the German Protestant Orphan Asylum and director of the German National Bank.

Shipments of Iron Ore.—During the season of 1890 the ore shipping business of the ranges in Wisconsin, Minnesota and Michigan, the Gogebic, Marquette, Menominee and Vermillion ranges, will represent figures unprecedented in the history of the mining business. Up to November 1 there had been shipped from the ranges mentioned several hundred thousand over 7,000,000 tons, as against 7,500,000 for the entire season of 1889. Before the close of the present shipping season, which lasts a month longer, the grand total this season will reach over 8,000,000 tons. This ore is valued at from $3.50 to $6 per ton to shippers, according to quality. The probable total of 8,000,000 tons is exclusive of the ore received and manufactured at Bayview and other mills. The largest shipments from any one mine come from the Norrie. Up to October 1 over 900,000 tons alone were shipped from this mine, and the owners say it will reach over 1,000,000 tons before the season's close. This will be the largest shipment from any single mine in the world in the same time. The Milwaukee, Lake Shore and Western road had, up to November 1, carried nearly 2,000,000 tons, as against 1,400,000 tons for the season of last year.

Washington News.

(*From Our Regular Correspondent.*)

WASHINGTON, D. C., November 18, 1890.

The influx of Senators and Representatives in anticipation of the gathering of the closing session of the Fifty-first Congress occasions considerable discussion concerning party and parliamentary plans and prospective legislation when the overwhelming majority takes charge of the law making machine a little over a year hence. Among the present minority Representatives who have been re-elected there is a great deal of talk about tariff repeal and tariff reform. The agitation has undoubtedly done great harm, as it has caused an abandonment of many gigantic enterprises which were planned as soon as the bill was passed, and presuming that the elections would turn out in the line of the new Tariff act. The uncertainty cast around the economic policy of the Government in the future has done an immense amount of injury to industrial expansion, judging from the conversations of many public men who are just fresh from their constituents.

It is very certain that no change will be attempted by this Congress, and it is quite certain that nothing can be done in the line of tariff changes by the next Congress. Even with the uncertain tariff senators voting for modifications, the President would be certain to veto any change It therefore only remains for the various industrial interests to watch the course of events and act accordingly. The Alliance representatives, as far as known here, are largely in favor of free trade, while in the majority party in the Fifty-second Congress there will be a conservative tendency. It is certain that no material change under any circumstances could be made in existing tariff laws before the middle of the summer of 1894. Should there be a change of politics in the Executive in November, 1892, and everything else should go the same way, the new order of things would begin with the Executive in March, 1893, and the Congress, December, 1893, unless an extra session should be called. With these intervening periods for reflection, it is not likely that anything very radical will be accomplished.

The naval experts and foreign *attachés* have been taking a great interest in the launching of the armored cruiser Maine at the Brooklyn Navy Yard. A dispatch received at the Department this afternoon announced the successful launching of the great war ship. The event opens a new era in American naval construction and demonstrates to the world the capability of American naval officers and constructors and American mechanics in designing and building war ships.

The Secretary of the Treasury, in order to promote the completeness and accuracy of data under the new Tariff act, has officially promulgated a schedule exhibiting the classification of free commodities prescribed for all monthly statements of foreign commodities required to be rendered by officers of the customs to the Bureau of Statistics. This information will be grouped as:

Iron and steel, and manufactures of, not elsewhere specified.
Needles, hand sewing and darning.
Shot gun barrels, forged and rough.
Ores not elsewhere specified.
Platinum, unmanufactured.
Tin bars, blocks, pigs or grain or granulated.

An invoice of steel plate sheathings, rough as they fall, entered at 64/3 sterling per ton, referred for reappraisement value to the United States general appraisers, was passed during the week at New York without advance.

TRADE REPORT.

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 50 Dearborn street, CHICAGO, November 19, 1890.

Those who are looking for a decided slump in values in this market, as a consequence of recent occurrences, have been disappointed. There has been a slight easing off in some directions, but not more than usually happens at this time of the year. Prices are maintained remarkably in view of the bearish talk now prevalent. Collections were never better than they are this week. This is true as well with houses having a widely distributed trade as with those whose operations are confined to a limited field. What the future may bring forth is entirely a matter of conjecture, individual opinions depending much on personal temperament, but the immediate present is undoubtedly very reassuring to even the most timid.

Pig Iron —Considerably more business has been done the past week than was expected. More than one 1000-ton lot has been taken, and inquiries for next year's delivery are being made by large consumers, who are inclined to the opinion that now is a good time to buy for a reasonable distance ahead. Concessions are being made on business of this character, as might be expected, but prices are held up to the mark for prompt delivery. The rumor that a large consumer had bought his entire requirements for next year proves to be false. Transactions of this kind will probably be deferred until the exact effects of the recent financial flurry are known. From present appearances this locality will consume more Iron next year than ever. Sellers are therefore inclined to be conservative in forestalling the future at the sacrifice of profits. Ohio Softeners are in very good demand in small lots. Southern Coke is quiet, but a favorable sign for the producing interest is that principals are not urging their agents to make sales. So far their quotations stand unchanged, despite the offerings of warrants by presumably weak holders. Southern Car Wheel Iron has been taken to some extent. Lake Superior Charcoal is very quiet. Standard makes are stiffly held, but from one or two furnaces concessions may be had.

Lake Superior Charcoal	$19.00 @ $19.50
Local Coke Foundry, No. 1	16.00 @ 16.25
Local Coke Foundry, No. 2	15.50 @ 15.75
Local Coke Foundry, No. 3	15.00 @ .....
American Scotch	18.50 @ 19.00
Southern Coke, No. 1	16.25 @ .....
Southern Coke, No. 2	15.75 @ ....
Southern Coke, No. 3	15.00 @ ....
Southern, No. 1, Soft	15.75 @ .....
Southern, No. 2, Soft	14.75 @ .....
Southern Gray Forge	14.75 @ .....
Southern Mottled	14.25 @ .....
Tennessee Charcoal, No. 1	18.50 @ .....
Alabama Car Wheel	22.25 @ 23.50

Bar Iron.—Jobbers report continued delay in getting old contracts filled, and are frequently annoyed by the scarcity of standard sizes when so much Iron is due them. They are maintaining full rates for extras without any trouble. Manufacturers are in receipt of more inquiries than last week, and think the market looks so much better that prices will again be steady. The same disparity in quotations prevails that was noted last week. A few quote 1.85¢, half extras, Chicago, the majority 1.80¢, and a few 1.77½¢. Several large orders were taken by the lowest sellers, which relieved the market perceptibly. The store price is 2.05¢ @ 2.10¢.

Structural Iron.—The jobbing demand holds up very well as the weather continues remarkably favorable for outdoor work. Quotations, f.o.b. Chicago, in carload lots, are as follows: Angles, 2.35¢ @ 2.40¢; Tees, 2.90¢ @ 3¢; Beams, 3.20¢; Universal Plates, 2.45¢ @ 2.50¢; Sheared Plates, Iron, 2.50¢ @ 2.60¢; Steel, 2.60¢ @ 2.70¢; Beams sell from store in small lots at 3.70¢, but Angles and Tees at 10¢ @ 15¢ ℔ 100 above carload prices.

Plates, &c.—Dealers report renewed heavy buying after a slight season of dullness. While they continue former quotations, they are inclined to make concessions on favorable orders to be filled from stock, in view of the possible effect on the mills of the financial disturbances.

Sheet Iron—Is slow of sale at present, and manufacturers are looking for orders. They continue to quote 3¢, mill, for No. 27. Stores quote 3.30¢ @ 3.40¢ for same gauge. Galvanized has lost its activity, but is unchanged in price, at 60 and 5 % for small lots.

Merchant Steel.—Tool Steel is in particularly good demand. Other Steels are moving fairly well at unchanged prices.

Old Rails and Wheels.—The demand for Old Iron Rails was stagnant almost the entire week. Some inquiries were received yesterday, however, which may lead to business. They are quoted nominally at $25.50 @ $26. Old Steel Rails are in but light demand at $16.50 @ $20, according to lengths. Car Wheels are still very quiet, and nominally worth $18.50 @ $19.

Scrap.—The market is very dull. Dealers' selling prices, net ton, as follows: No. 1 Railroad, $20.50; No. 1 Forge, $20; No. 1 Mill, $15.50; Fish Plates, $23; Axles, $25.50; Pipes and Flues, $15; Machinery Cast, $13.50; Cast Borings, $8.50; Wrought Turnings, $12.50; Mixed Steel, $12.50; Coil Steel, $16; Leaf Steel, $17; Old Tires, $19.

Steel Rails.—Rail mills here are well supplied with work for the remainder of the year, the North Chicago mill having been turned on Beams. This gives the other Rail mills more to do. Orders are coming in slowly for next year's delivery. Quotations are $31 @ $31.50. Splice Bars are dull, with 2.10¢ asked for Iron and 2.15¢ @ 2.20¢ for Steel. Spikes are firm at 2.30¢ @ 2.35¢. Track Bolts with Hexagon Nuts are still quoted 3.10¢ for future delivery, but more could be had for immediate shipment.

Metals.—Dealers report a quiet week in Lead, with 4.94¢ asked for Soft Missouri, and 5¢ for Desilverized in carload lots. Lake Copper is a little easier, and quoted at 17.25¢. Casting brands are firm at 14.50¢. Spelter continues firm at 6¢ for Kansas brands.

Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts., CHATTANOOGA, November 17, 1890.

Pig Iron.—Very little change has taken place in the condition of the Iron market during the past week. It is a fact, however, that the demand and inquiries have shown an increased tendency, especially in 1, 2, and 3 Foundry. No. 1 is especially scarce, and the furnaces have not been able to respond satisfactorily to the demands of the consumers. The differences in price now range from 75¢ to $1. Considering the season the demand is rather unexpected, and some of the stacks are showing a disposition to raise prices somewhat. A good deal of Iron is now being sold at $13 for No. 1 and $11.50 @ $12 for No. 2, and some sales have been made for cash at these prices. The sale of 2000 tons of No. 2 for $11.25 for cash at the furnace is noted, but this could not be said to be exactly a standard brand. There are a few lots of Nos. 2 and 3 and some No. 1 that are being sold at the regular market rates, but these are a little off quality. The fact of it is that all the furnaces that are making first-class Iron are sold up far into the beginning of next year. The lines running North, East and West from Southern shipping points have issued a new rate sheet, which, however, shows but little change, although there is pretty strong talk of a slight advance in freight rates in the near future.

Louisville.

LOUISVILLE, KY., November 17, 1890.

But few sales were made during the last week, and were for delivery six months of next year, on basis of $10.50 Gray Forge, furnace. There have been reports of offerings at $10.25, but these were exceptional in their nature and do not show the market. The offer, however, on basis of $11.50 for No. 2 Foundry, for long deliveries, has been given generally, and we think prices will not vary very much from these figures for some time to come. The condition of the money market East, while it has excited great interest and some apprehension, is not regarded among consumers as representing the general situation in the country. While it is felt that during the coming year the price of stocks would have a tendency to curtail railroad buying, owing to the light purchases during the past it is considered that their needs during the coming year will compel them to buy freely. Purchases, therefore, are made without any special fear of the future. We quote:

Southern Coke, No. 1 Foundry	$14.75 @ $15.25
Southern Coke, No. 2 Foundry	14.25 @ 14.75
Southern Coke, No. 3 Foundry	13.75 @ 14.25
Southern Coke, Gray Forge	13.25 @ 13.75
Southern Charcoal, No. 1 Foundry	17.50 @ 18.50
Southern Car Wheel	22.50 @ 23.50

St. Louis.

OFFICE OF *The Iron Age*, 214 N. Sixth st., ST. LOUIS, November 17, 1890.

Pig Iron.—It is extremely difficult to give the exact condition of the market as at present prevailing. While prices fail to show any change either way, there is a feeling of hesitation prevalent which has a depressing influence on the market at large. The financial troubles in the East are strong factors in the situation, and it seems quite certain that Pig Iron will have little or no attention from the speculators, as they have their hands full of other stocks. When they do come into the market it is generally with the intention of taking a "flyer," and while temporarily the price of Iron shows improvement, the effect is by no means permanent, and the unwary find themselves loaded up with high priced Iron which when it was bought seemed very cheap indeed, but unfortunately did not prove so. The consumer has, therefore, an excellent opportunity of gauging the present condition and possible outcome of prices with some degree of accuracy. As a result, the price of Pig Iron for the next six months is quite sure to be made on a legitimate basis, and buyers will have an advantage which they will no doubt gladly avail themselves of. Prices at present prevailing are considered to be pretty near bottom, and some furnacemen have advised their agents that under no consideration will they be lowered, as with the present price of Coke they claim that to-day's quotations are as low as they can go and leave them any profit. With these facts in view it seems quite reasonable to assume that the present range of values will be maintained and with a steady demand perhaps higher prices would follow.

There is a decided scarcity of No. 1 and No. 2 Soft and No. 2 Foundry Irons and full prices are quoted for these grades. Sales during the week have been limited to small quantities, but in the aggregate

have amounted to a good week's trade. We quote as follows for cash, f. o. b. St. Louis:

Southern Coke, No. 1 Foundry,	$15.50 @ $16.00
Southern Coke, No. 2 Foundry,	14.50 @ 15.00
Southern Coke, No. 3 Foundry,	14.00 @ 14.50
Gray Forge	13.50 @ 14.00
Southern Charcoal, No. 1 Foundry	17.25 @ 17.75
Southern Charcoal, No. 2 Foundry	16.75 @ 17 25
Missouri Charcoal, No. 1 Foundry	16.25 @ 16 50
Missouri Charcoal, No. 2 Foundry	15 75 @ 16 25
Ohio Softeners	17.75 @ 19.25

Bar Iron.—The market is a trifle unsteady. Demand is not as heavy as it was two weeks since, and while there is no marked change in prices, the feeling is not as steady as it was. Lots from mill command 1.85¢; small lots from store are quoted at from 2¢ to 2.05¢.

Barb Wire.—There is no perceptible change since our last report. The demand is considered fair for the season, and as the open weather continues considerable fence building has been done, hence the demand. Prices show no change, and as a rule are firmly adhered to,, as follows: Painted, 2.80¢; Galvanized, 60¢ additional; carload lots, 5¢ ℔ cwt. less than than above prices.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., November 18, 1890.

Notwithstanding the severe strain in financial circles, prices of Iron up to this date do not appear to have been affected. Naturally, there is more hesitancy in entering into new engagements, but as nearly the entire output of mills and furnaces is being taken on old contracts, there is no necessity for sales at lo ver prices, as there is practically nothing to be forced on the market. What may be later on, remains to be seen, and to a great extent depends probably on the outcome of events in the money market.

Pig Iron.—The very heavy consumption the past several months is fully main tained. Production shows a slight falling off, but as yet there is no material change either in output or consumption. Buying is somewhat more circumscribed, however, and for deferred deliveries consumers stand out for concessions. Their claims are that, low as the price of Iron is, outside conditions do not warrant purchases in advance of requirements at figures heretofore ruling, so that to secure actual purchases concessions of more or less importance are unavoidable. This statement of fact does not imply that prices are actually lower, but, all the same, it is a fact that buyers are holding off, unless inducements are offered for immediate business. As already remarked, this year's output is pretty well engaged, but for next year's business both sides are holding off, sellers hoping that the necessities of consumers will prevent any decline in prices, while buyers are perfectly willing to pay the old rates if the demand for the finished article warrants it. There is no wish to break the market, neither is there any general disposition to place orders in advance of known requirements. Sales, therefore, are mostly at unchanged prices for early deliveries, or at a slight reduction for later dates. The difficulty in securing freights from the South keeps a good deal of Iron out of the market, and to that extent, as long as it lasts, is of some advantage to the local companies. As a rule, the asking prices for lots delivered in consumers yards are about as follows:

Ohio Softeners, No. 1x	$19.00	@	$19.50
Ohio Softeners, No. 2x		@	18.50
Standard Penna, No. 1x	18.00	@	18.50
Standard Penna, No. 2x	17.00	@	17.50
Medium Penna. No. 1x	17.50	@	17.75
Medium Penna, No. 2x	16.25	@	16.75
Virginia and Southern, No. 1x	17.00	@	17.50
Virginia and Southern, No. 2x	15.75	@	16.25
Standard Neutral All Ore Forge	15.00	@	15.50
Ordinary Forge Cinder mixed	14.00	@	14.50
Charcoal Car Wheel Iron	22.00	@	26 00

Bessemer Iron.—The market shows no improvement, and the outlook does not indicate much activity in the near future. Nominal prices are $18 @ $18.50, at furnace, but buyers appear to be entirely out of the market, so that under pressure to realize the figures named would doubtless have to be shaded. Still it is only fair to say that there is no appearance of any such pressure, and that sellers are almost as indifferent as buyers appear to be. Latest advices from the West are to the effect that there is a better demand and somewhat firmer prices.

Coke.—The demand is quite active, but prices are irregular, varying from $2 to $2.15 for Connellsville and from $1.85 to $1.95 for outside Coke.

Spiegel and Ferromanganese.—There is very little demand, and although $31.50 @ $32 is quoted for 20 %, duty paid, buyers are not in the market at much over $31 @ $31.50. Ferromanganese sells in small lots at $68 @ $69, duty paid, for 80 %.

Steel Rails.—The unsettled condition of the money market has been an effectual barrier to any large transactions in Rails. Small and medium sized lots are taken at about $29.50, at mill, but orders for lots of 2000 to 3000 tons and upward could be placed at $29 or less for cash or its equivalent. There is plenty of business to be had, but in times like these manufacturers require cash or undoubted collaterals, which at the moment are not abundant. The outlook, therefore, is not encouraging, and in the meantime both buyers and sellers are waiting developments. It is stated that no business whatever has been entered as yet for 1891 delivery. Some deliveries that were to have been made during 1890 will be carried over to 1891, but no new business has been done, and for the present it is said that manufacturers see no money in the business at prices now ruling.

Slabs and Billets.—It is difficult to define the market with exactness, as quotations vary in some cases as much as 50¢ ℔ ton on equal qualities and deliveries. But, on the whole, the market is a shade firmer, with $29 50 @ $30, delivered, for Nail Slabs, and $30 @ $30.25 for Billets. Consumers are figuring around for good sized lots, but do not appear to have made up their minds to pay these figures, and as a matter of fact, firm offers at 50¢ less money are not made with much freedom. It's a waiting market, with a fair degree of firmness on the part of sellers. A sale of about 2500 tons Blooms was made a few days ago, for rolling into Street Rails; price understood to be about $28.50, at mill.

Muck Bars.—The situation is much the same as noted in our last report. The demand is of an irregular character, and to effect sales sellers would have to shade $30, delivered. There are free offerings at $29 @ $29.50, at sellers' mills, but buyers are scarce, and not inclined to pay more than $29.50, delivered, and even then large lots are not bid for.

Bar Iron.—Mills are very well employed for the present, although in a few cases the delay in specifying is somewhat disappointing. The amount of new business offering also shows a falling off, so that the position is not as favorable as it was a few weeks ago. Considering everything, however, there is no cause for either complaint or surprise, and for the present manufacturers maintain prices at about 1.85¢ @ 1.95¢ at city mills, and 1.80¢ @ 1.85¢ at outside points. P. S.—Some large car orders are on the point of being given out, and it is expected that several thousand tons of Bar Iron will be called for within a few days.

Skelp Iron.—A fair amount of business is offering on the basis of about 2¢ for Grooved and 2.15¢ for Sheared, with some sales at 2.05¢ and 2.15¢ respectively, but buyers have reduced their bids, and expect to do a little better for lots of 500 tons and upward.

Plates.—There is a very fair inquiry for Plates, and if money was reasonably easy mills would be likely to take in a great deal of work. As it is, they get about enough to keep them running to their full capacity, but at somewhat irregular prices. Cash buyers are particularly well looked after, and on desirable specifications concessions at about a ⅛¢ from quoted rates are not unusual. In ordinary cases quotations for lots delivered in buyers' yards are about as follows:

	Iron.	Steel.
Ship Plates	2.25 @ 2.30¢	2.40 @ 2.50¢
Tank	2.25 @ 2.30¢	2.40 @ 2.50¢
Bridge Plate	2.30 @ 2.40¢	2.50 @ 2.60¢
Shell	2.45 @ 2.55¢	2.65 @ 2.75¢
Flange	3.10 @ 3.20¢	2.90 @ 3.00¢
Fire-Box	3.75¢	3.75 @ 4.25¢

Structural Material. — There is no special change to notice in this department. Mills are well employed, and for the present have fair prospects for continued activity. Prices are unchanged, and for lots delivered in consumers' yards prices are as follows: Angles, 2 20¢ @ 2.30¢; Sheared Plates, 2.30¢ @ 2.40¢, and from 10¢ to 20¢ more for Steel, according to requirements. Tees, 2.7¢ @ 2.8¢; Beams and Channels, 3.1¢ for either Iron or Steel.

Sheet Iron.—The demand for Thin Sheets is fully maintained, but on the heavier class of Sheets there is not much demand. Mills are running to their fullest capacity, however, and as yet have not been able to do much in the way of stocking up assortments. Prices are hardly as firm as they were, but for carload lots asking rates are about as follows:

Best Refined, Nos. 14 to 20	3.00¢ @ 3.10¢
Best Refined, Nos. 21 to 24	3.20¢ @ 3.30¢
Best Refined, Nos. 25 to 26	3.40¢ @ 3.50¢
Best Refined, No. 27	3.50¢ @ 3.60¢
Best Refined, No. 28	3.60¢ @ 3.70¢

Common, ¼¢ less than the above.

Best Soft Steel, Nos. 14 to 20	3¼¢ @ 3½¢
Best Soft Steel, Nos. 21 to 24	3⅝¢ @ 3¾¢
Best Soft Steel, Nos. 25 to 26	3¾¢ @ 3⅞¢
Best Soft Steel, Nos. 27 to 28	@ 4⅛¢

Best Bloom Sheets, 1-10¢ extra over the above prices.

Best Bloom, Galvanized, discount	@ 60 %
Common, discount	62½ @ 65 %

Old Rails.—There is not very much demand, so that prices depend a good deal upon the urgency of holders to realize. Two lots of Double Heads—several hundred tons in all—were taken at $25 50 for prompt steamer shipment. Lots at interior points sell at from $25.75 to $26.25 for T's, but the feeling is not as firm as it was a little while back.

Scrap Iron.—The demand is well maintained, and all offerings are taken at about the following quotations: No. 1 Railroad Scrap, $23 @ $23.50, Philadelphia, or for deliveries at mills in the interior $23.50 @ $24.50, according to quality and point for delivery; $15 @ $16 for No. 2 Light; $16 @ $17 for best Machinery Scrap, $15 @ $15.50 for ordinary, $15.50 @ $16.50 for Wrought Turnings, $11 @ $11.50 for Cast Borings, and nominally $26 @ $28 for Old Fish Plates, and $17 @ $18 for Old Car Wheels.

Wrought Iron Pipe.—The general demand continues as satisfactory as previously reported, and there is a great scarcity of all sizes below 2 inches. Prices are firm and Discounts unchanged, as follows: Butt-Welded Black, 47½ %; Butt-Welded Galvanized, 40 %; Lap-Welded Black, 60 %; Lap-Welded Galvanized, 47½ %; Boiler Tubes, 1¾ inches and smaller,

45 %; 2 inches and larger, 50 %; Oil Well Casings, 50 %.

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fourth and Main Sts., CINCINNATI, November 18, 1890.

Pig Iron.—At the moment dullness is the only feature of prominence presented by the local market for Pig Iron. Yet, all things considered, there have been a fair volume of trade. Sales have been mainly of small amount to meet present and pressing wants, but several lots of 1000 tons and more have also changed hands. A point worthy of note has been the relative attitude of buyers and sellers to the market. Buyers have made all the advances which have resulted in business of moment, while sellers have apparently temporarily retired from the market. They recognize that little good can result from efforts to sell during a time like the present, when money is stringent and confidence strained in the financial world. If credits are overexpanded in industrial interests, any test like the present is likely to give rise to a series of liquidations, which after all is over can only be of advantage to the really solid concerns. The multitude of new enterprises which have been floated recently are the source of some uneasiness among moneyed men, but those which have been born of business needs and social conditions are resting firmly on solid foundations. Only the schemes which are the offspring of stock jobbing chimeras are to be feared. The Iron trade is regarded as in exceptionally fine condition to withstand a strain which present general conditions bring about. Prices are low, consumption is large, even in excess of the liberal production which is in progress, and prices obtained for the finished product show a wide margin. Some large sales of warrant Iron are imminent at some concession in price, and a few speculative lots have been sold at reduced prices, but as a whole the market has been well maintained. Among the largest sales of the week to regular consumers were 3000 tons Gray Forge, Mottled and White Iron in lots of 1000 tons each, all Southern Coke Iron, on the basis of inside quotations. Prices generally are without quotable change, and are for cash, f.o.b. Cincinnati, as follows:

Foundry.

Southern Coke, No. 1	$15.25 @ $15.75
Southern Coke, No. 2	14 25 @ 14.50
Southern Coke, No. 3	13.75 @ 14 00
Ohio Soft Stone Coal, No. 1	17.00 @ 17.50
Ohio Soft Stone Coal, No. 2	16.00 @ 16.50
Mahoning and Shenango Valley	17.50 @ 18.00
Hanging Rock Charcoal, No. 1	21.00 @ 22.00
Hanging Rock Charcoal, No. 2	19.50 @ 20.50
Tennessee and Alabama Charcoal, No. 1	18.00 @ 19.00
Tennessee and Alabama Charcoal, No. 2	18.50 @ 19.50

Forge.

Gray Forge	13.25 @ 13.50
Mottled Neutral Coke	12.75 @ 13.00

Car Wheel and Malleable Irons.

Southern Car Wheel	22.50 @ 23.50
Hanging Rock, Cold Blast	24.00 @ 24.50
Lake Superior Car Wheel and Malleable	21.00 @ 22.00

Detroit.

WILLIAM F. JARVIS & Co., Detroit, Mich., under date November 17, report as follows: There have been several transactions consummated for Southern Iron during the past week at reasonably fair figures. The scarcity of cars is reported generally throughout the South, causing users here to desire their orders filled with promptness, that there may be no danger of their running short. The reduction of stocks on hand noted during October, while it is small, still points in the right direction, and it is generally thought here that, while the market may not advance for Coke Irons for some little time, it is certain that it will not decline. Accordingly, purchasing for next year's delivery is being looked up by manufacturers and some considerable deals may beexpected before the end of the year. Lake Superior Charcoal is in good demand at firm figures, although not as a rule for large tonnage to any particular buyer, but seems to be occasioned by manufacturers desiring to be certain of their supply and of getting it shipped prior to the close of navigation, two weeks from to day. We quote the market as follows:

Lake Superior Charcoal, all numbers	$20.00 @ $20.50
Lake Superior Coke, Bessemer	18.50 @ 18.75
Katahdin (Maine Charcoal)	23.50 @ 24.00
Lake Superior Coke Foundry, all ore	18.50 @ 19.50
Ohio Blackband (40 per cent.)	18.25 @ 18.75
Southern No. 1	16.50 @ 17.00
Southern Gray Forge	14.50 @ 15.00
Jackson County (Ohio) Silvery	19.00 @ 19.50
Connellsville Coke	4 90 @ .....

Cleveland.

CLEVELAND, November 17, 1890.

Iron Ore.—The talk among Ore men at present is confined to speculations regarding the market for next season, which is not expected to open before April 1, 1891. Unless there is a marked improvement in the Pig Iron market it is certain that prices for all grades of Ore next year will be from 50¢ to $1 ℔ ton below those paid for the Ore now being brought down. The shipments of Iron Ore for the season of 1890 aggregate about 7,600,000 tons, and vessels are still bringing down heavy cargoes. Lake freights are but slightly changed, an extra 10¢ ℔ ton now being demanded from Ashland and Two Harbors. The weather is unpleasant, but not severe, and navigation may continue for ten days or two weeks. In such an event the total lake shipments will closely aggregate 8,000,000 tons, with a possibility of 700,000 or 800,000 being sent down by the railroads during the winter.

Pig Iron.—However the results of the recent election may be generally regarded, it is quite certain that no improvement in the Iron market is noticeable. Distrust and prehension have been added to the unapfortunate conditions that have existed for two or three months. The dullness noticed for several weeks seems to have deepened into a hesitancy that may or may not be due to the result of the election, but is certainly apparent enough. Buyers seems to have little or no confidence, and approach the market timidly. There have been additional sales of Bessemer at the valley furnaces as low as $16, a fact that when considered in connection with the high prices paid for Ore last year and the present demands of the Coke manufacturers is far from encouraging. Sellers decline big orders for the reason that the aggregate loss will be just so much more than a smaller sale. A few sales are reported, but at prices fully as low, if not lower, than those prevailing a few weeeks since. Dealers seem less hopeful of a speedy revival than for many weeks past. Stocks are running low, but prices are only moderately firm, and it is said that certain small companies have cut quotations in order to unload accumulations of certain grades.

Manufactured Iron.—The boom continues. Indeed, every product of Pig Iron is selling well. Common Bar at 1.85¢, from the mills, remains in high favor. Muck Bar at $30.50 @ $31.50 is in good demand, while Sheets and Structural Shapes are hard to obtain at any figure.

Scrap.—The market is not particularly active, although No. 1 Wrought at $22 is selling quite freely. Cast Scrap is quoted at $13 and Selected Axles at $28. A few Old Car Wheels have been placed at $18.

Old Rails.—The market is only fairly active, sales being reported at $27 @ $27 50. Prices everywhere recognized as wofully out of harmony with the situation in the Pig Iron market.

Nails.—The market is easy, but prices are unchanged.

Financial.

The embarrassment of the great London banking house of Baring Bros. and the assistance extended to them by the Bank of England, which in turn was fortified by remittances of gold from France and Russia, made up a series of events of startling import. The reflex influence in New York was severely felt, aggravating a situation already serious and threatening. Only by the aid of the Clearing House Association the Bank of North America had been saved from dissolution, as a result of the failure of Decker, Howell & Co., and two other banks, which had been unable to make their exchanges, were similarly rescued. One of the latter, the North River, was unable to resume and has gone into the hands of receivers. The New York Clearing House, like the Bank of England, acted with commendable promptness in a grave emergency, averting a financial crisis liable to become world wide in its disastrous effects. Enormous sums were involved in the various transactions. In the case of the Bank of England no less than £11,000,000 were immediately supplied from external sources, the bank simultaneously pledging itself to the extent of £7.000,000 in a total of £11,000,000 required by Baring Brothers, and guaranteed for a period of three years, to be used in carrying its securities and taking up its obligations. A London special says of this firm that, aside from depression in Argentines, the principal and precipitating cause of the firm's embarrassment was Russia's unexpected withdrawal of £5,000,000 from the firm's account. The amount borrowed by the Bank of England from the Bank of France is understood to have been $3,000,000 for three months at 3 %.

The great feature at the New York Stock Exchange on Thursday and Friday was the liquidating process in the Northern Pacifics for the account of the suspended firm of Decker, Howell & Co., whose liabilities were put down by the assignee at between $10.000,000 and $15,000,000, principally on loans. There was a gradual decline in the Villard stocks, Lackawanna, Union Pacific and the grangers, also a drop in Pacific Mail. On Saturday there was a sharp break on the news from London relating to Baring Brothers, and transactions were on an enormous scale. On Monday there was comparative calm, despite two failures among operators and disclosures of stock forgeries involving the brokerage firm of Mills, Robson & Smith to the extent of $350,000, also half a dozen trust companies holding the fraudulent securities. Americans were higher in London and prices advanced generally. Relief was afforded by the Bank of Commerce advising all banks to take out Clearing House certificates, also that forbearance be exercised in regard to loans held by parties of reputable standing. The Boston and Philadelphia Clearing Houses resolved to adopt a similar course. On Tuesday the failure of Gallaudet & Co , note brokers, with about $1,000,000 liabilties, unsettled the market. Among the paper handled was that of iron manufacturers and metal and hardware merchants, but lately it has been largely Jersey rubber. The failure was due to the calling in of loans. The

market closed heavy. It was stated that the Bank of England is practically in charge of the Barings' affairs. The Clearing House on Tuesday issued $4,000,000 in loan certificates.

The report of United States Treasurer Huston states that the revenues of the Government during the fiscal year ended June 30 last were $403,080,982, an increase of $16,030,923 over the preceding year, and the expenditures $297,736,436, an increase of $15,739,871.

Exports for the week were $5,731,500; imports, $10,616,000.

The enormous decline in values of active stocks between November 1 and November 15, and the improvement between the last date and Monday, is shown by the following table:

	Closing. Nov. 1.	Lowest. Nov. 15.	Closing. Nov. 17.
North American	34⅛	10	12¼
Northern Pacific, common	27⅞	18⅞	19⅜
Northern Pacific, preferred	73	57⅛	59
Atchison	33½	23¼	27⅛
Richmond Terminal	18⅞	13⅛	14½
Lackawanna	143⅛	123⅜	129⅛
Union Pacific	46¾	43	46⅝
St. Paul	56¾	44	48
Burlington and Quincy	90½	80	84½
Louisville and Nashville	76⅛	66	70⅞
Missouri Pacific	68¾	59¾	62½
Pacific Mail	41⅝	30½	33⅛
Sugar Trust	65¼	50	51¾
Western Union	81	74¾	76
Edison Gen. Elec	92¼	84½	85
Big Four	66¾	55⅛	59
Illinois Central	97¼	92½	93⅛
Pullman	204	175	177
Silver	106	100¾	100

Bids for 4 % Government bonds were reduced ½ %, and State issues were entirely neglected. Quotations are as follows:

U. S. 4½s, 1891, registered	103
U. S. 4½s, 1891, coupon	104
U. S. 4s, 1907, registered	121½
U. S. 4s, 1907, coupon	121½
U. S. currency 6s, 1895	113

Money loaned at the highest rates. While the greater part of the banks and trust companies accommodated their customers at 6 %, some of these institutions placed their money at the ruling rates. There has been no market for commercial paper. Small lines of receivables of the best character were disposed of at as high as 8½ %. Rates for domestic exchange are still against New York. Foreign exchange is demoralized and quotations are nominal. The ease of collections and soundness of credits are reassuring factors in the situation.

The weekly bank statement showed an increase of $1,711,950 in reserve. The deficit is now $832,290. In loans there was a decrease amounting to $5,577,800. Deposits decreased $5,678,600. The statement takes no account of Clearing House certificates issued. Silver dropped to $1 ℔ ounce, the lowest point since the passage of the Silver act, and 20¢ lower than early in September. This makes the silver dollar worth about 77½¢. Upon the subject of silver coinage it is said that the Secretary will stand upon his old ground of resistance to any policy which does not anchor the silver coinage and the notes issued upon it to gold values.

Coal Market.

The Anthracite Coal market is dull and weak, sales being on a limited scale and without reference to schedule prices. It is emphatically a "thermometer market," the mildness of the season being a controlling factor and disturbing all previous calculations. The shipments from the mines are in consequence in excess of consumption, but have been allowed great freedom in anticipation of the close of navigation, also to anticipate an advance in rates of freight by rail already in effect. The Pottsville *Journal* says: "The Reading, the Pennsylvania, the Lehigh Valley and the Jersey Central have all shipped more Coal during the week just closed than they did during the same period a year ago. Their employees are all working overtime. We are solemnly assured by the New York organ of the trade that there has been a cessation of mining. The contrary is true. There has rarely been better recent work in progress. Similar reports come from the Middle field and the Wyoming Valley." At the present rate of production the total number of tons shipped this year will not fall short of 35,500,000. The prices realized generally correspond with those of contracts made in September.

The total shipments of Coal from the Pittsburgh and Ohio districts to Northwestern ports up to October 1 was 2,000,000 tons, or about 52,000,000 bushels. Of this amount Ohio furnished 1,100,000 tons, and Pittsburgh 900,000 tons. The total shipments to these points for the year will amount to 2,500,000 tons. Including the Coal shipped East and South, the railroad mines have produced about 2,000,000 tons. Adding 6,000,000 tons shipped from the river mines, it will be seen that the total shipped from the district will reach the neighborhood of 6,000,000 tons.

Coal carriers to Eastern points are getting better rates on account of the advancing season.

An important find of Coal at Houtzdale, Clearfield County, Pa., is announced, the vein being 4½ feet thick at a depth of 160 feet. Several shafts will be sunk in the vicinity. The Berwin-White Coal Mining Company will sink two or three shafts, while other Coal companies will follow suit. Another fine vein 22 feet thick has been struck in the Flat Top or Pocahontas field, West Virginia.

A meeting to regulate production will be held on Friday.

New York.

Office of *The Iron Age*, 66 and 68 Duane street, } NEW YORK, November 19, 1890.

In every line the market has been so absolutely lifeless that a report must necessarily be a repetition of nominal quotations. The most comforting feature in the situation has been that no sellers have been forced to realize. Any attempt to push sales on an unwilling market would, of course, quickly lead to a sharp decline in prices. We believe it to be generally true of the Iron trade, not alone in this city, but throughout the country, that it is on a safe basis. There has been no speculation for months past, there are no unduly large stocks in weak hands and prices along the whole list are low; in fact, they are unduly low in some cases. The Iron trade is in a very sound condition. A good many furnaces and the majority of the mills have had a very good year thus far. They have made money, a part of which only has been put into improvements and extensions. The works are strong financially, and nothing short of general financial disaster can hurt them seriously. They can stand the present strain, and are able to resist the long period of dullness which is only too likely to follow. It is feared that many projects will now remain in abeyance, and that a good deal of work for town improvements, railroad extension and railroad equipments will not come out for months.

American Pig.—While generally speaking only a moderate amount of business has been done, we may still note that some blocks of considerable magnitude have been placed. Efforts to realize on warrants still continue. Makers of standard Northern brands are not, however, pressing in the market. There is some disposition on the part of some Southern producers to effect sales at concessions in price. We quote $17 @ $18 for No. 1 Foundry, $16 @ $16.50 for No. 2 Foundry and $15 @ $15.50 for Gray Forge, standard Northern brands, tidewater delivery. We quote Southern No. 1 $16.50 @ $17.25, No. 2 $15.75 @ $16.25 and No. 3 $14.75 @ $15.

Spiegeleisen and Ferromanganese.—No business whatever has been done in Spiegeleisen, which we quote at $30 @ $30.50 nominally. Ferromanganese may be quoted $67 @ $68. It is claimed that the foreign markets show a tendency toward firmness, because the closing of the Black Sea ports cuts off further ore supplies for the winter from Southern Russia.

Steel Rails.—The market has been totally featureless. We have not heard of a single sale of any consequence, nor are there any *bona fide* inquiries of magnitude in the market. The large Union Pacific order has been postponed, and it is only too likely that work will come out very slowly for the balance of the year. We doubt whether at any time the mills have entered a new year with as little business booked as they will have for 1891. That does not mean, of course, that the business for the next year is going to be bad. It only shows to what an extent orders have been withheld by the railroads. The deliveries of the mills in the Association up to November 1 were 1,207,688 tons. Adding the outside mills, the total has probably reached 1,350,000, so that the year will close with a production of about 1,500,000 tons of Rails weighing 50 lb or more. The orders on the books to November 1, for 1890 delivery, aggregated 1,478,224 tons, exclusive of light Rails. No data are available as yet for the sales for 1891 delivery. The sale of the Allegheny Bessemer mill is confirmed. We quote Steel Rails at Eastern mill nominally at $28.50 @ $29.

Rail Fastenings.—The market continues very dull. Some of the sales of Steel Angle Bars made during the past month have been at very low figures, not netting some of the mills more than 1.60¢ at works. We quote: Angles, 1.70¢ @ 1.75¢, delivered; Spikes, $2 @ 2.15, and Bolts, 2.75¢ @ 3¢.

Manufactured Iron.—Some interest has been awakened in the placing at Boston of a large order for German Beams, an American mill taking only the 15-inch Beams. It is understood that these Beams were purchased at about 2.70¢ delivered at Boston. We learn that the cost of laying down German Beams, base sizes, in this harbor is about 2.60¢ So far as the large architectural works of this city are concerned, the question concerns them less for this year, since they have contracts for 1890 delivery at 2.80¢. It is a different matter for 1891. The importation of Beams is, however, attended with so many difficulties that merchants are slow to enter the business.

Old Rails.—In the absence of any business the market is entirely nominal at $24.50 @ $25 for Old Iron Rails and $20 @ $21 for Old Steel.

The Antrim Iron Company, of Grand Rapids, Mich., whose furnaces are at Mancelona, Mich., have appointed as sales agents, in the Eastern market George W. Stetson & Co., of 69 Wall street, New York. The company are producing from to 170 tons of Charcoal Iron per day.

The Union Drawn Steel Company, of Beaver Falls, Pa., announce that Richard Thompson no longer represents them as selling agent in New York. A. T. Brook acts for them in that capacity, his office being Room 8, No. 102 Chambers street.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, November 18, 1890.

A number of mills have already changed their puddling furnaces from gas to coal, and others who have had trouble from a shortage of gas are doing likewise. The feeling still obtains that new gas fields will soon be opened and that there will be an abundant supply for all—manufactories as well as private consumers.

Pig Iron.—There has been nothing of an especially important character developed during the past week, with the exception that a confident feeling appears to obtain on the part of furnacemen, notwithstanding a slight increase in stock in first hands is reported in the Shenango and Mahoning Valley district for last month. There has been considerable inquiry for Bessemer Iron at the low prices of a couple of weeks ago, but no sellers are now to be found. A broker who has an order to buy for future delivery reports that he was unable to find any sellers, and it appears to be generally conceded now that $17, cash, is the bottom price, and some furnacemen are refusing to accept the price quoted, from which it is evident that they expect to do better. It is admitted that even at $17 there is little or no margin for profit to those furnaces having all advantages, and some furnace men aver that if they cannot get cost of production they will, after working up what ore they have on hand, blow out. There is a steady demand for Forge Iron, and an increased movement in Foundry Irons has prevailed the past week or two. Prices remain about as quoted a week ago :

Neutral Gray Forge	$14.75 @	$15.00,	cash.
All Ore Mill	15.50 @	16.00,	"
White and Mottled	14.00 @	14.50,	"
No. 1 Foundry	17.00 @	17.50,	"
No. 2 Foundry	16.00 @	16.25,	"
No. 3 Foundry	15.50 @	15.75,	"
No. 2 Charcoal Foundry	21.50 @	22.00,	"
Cold Blast Charcoal	25.00 @	30.00,	"
Bessemer Iron	17.00 @	17.25,	"

Muck Bar—Is offering pretty freely, and the market is weaker. Sales of small lots for immediate delivery at $31.25 @ $31.50, cash, but future deliveries are to be had at $30.50 @ $31. Sale of 1500 tons reported for November, December and January at $31. The fact that a number of mills which, owing to a shortage of gas, have been compelled to buy large quantities of Muck Bar, are going back to coal, and will soon be able to make all they require, is having its effect upon the market, and, in addition, the demand usually falls off somewhat at this season of the year. There has been more Muck Bar sold in Pittsburgh this year than ever before, which may be attributed to the shortage of gas. A great many contracts have been made for delivery from now until next March.

Manganese—Continues very dull ; demand is of a hand-to-mouth character, consumers refusing to buy beyond their immediate actual wants Small sales of 80 % foreign at $68 @ $69, Pittsburgh, and 80 % domestic at $70 @ $71.

Manufactured Iron.—There is not so much new business, but the mills continue very busy trying to catch up with their orders. Some of them have all they can do during the remainder of the present year, even if they do not get another order. Prices remain unchanged; Bars, 1.85¢ @ 1.90¢; Plate and Tank, 2.20¢ @ 2.25¢; No. 24 Sheet, 2.85¢ @ 2.90¢; Grooved Skelp, 1.85¢ @ 1.90¢; Sheared do., 2.15¢ @ 2.25¢, all 60 days, 2 % off for cash.

Nails.—There is but little doing in Cut Nails, and to makers the market is in an unsettled and unsatisfactory condition. A firm here in Pittsburgh, it is said, contemplate wrecking their Nail machines. We continue to quote at $1.80 @ $1.85, 60 days, 2 % off for cash, for either Steel or Iron. Wire Nails are weaker and lower, and we now quote at $2.20, 60 days, 2 % off for cash.

Structural Iron.—A continued good demand is reported and mills continue very busy, but prices remain unchanged, as follows : Angles, 2.30¢; Beams and Channels, 3.10¢ ; Tees, 2.85¢ ; Steel Bridge Plates, 2.65¢ @ 2.70¢; Universal Mill Plates, Iron, 2.30¢; Refined Bars, 1.90¢ @ 2¢. The rumor noted in our report of last week that Carnegie, Phipps & Co. intended to start their recent acquisition, the Allegheny Works, up on Structural Steel, is without foundation. It is the intention of the new owners to keep their recent purchase working for the present at least on Billets and Slabs.

Steel Plates.— Prices are lower, and we now quote as follows : Fire Box, 4¢ @ 4.50¢; Flange, 3¢; Shell, 2.80¢; Tank, 2.40¢. There is a continued good degree of activity.

Merchant Steel.—There is a freer business reported ; prices unchanged: Tool Steel, 8¢ and upward ; Crucible Spring Steel, 4¢; Crucible Machinery Steel, 5¢; Open Hearth Steel, base sizes, 2¼¢ @ 3¢; Bessemer Machinery Steel, 2.40¢ rates; Tire Steel, 2.55¢ rates.

Wire Rods—Appear to have steadied up at $39 @ $40, cash, at makers' mill, with a little more inquiry reported. As compared with the highest point Rods have gone off $6 @ $7 per ton.

Billets and Slabs.—The market for Billets has steadied up, and so far as we can learn there are no sellers under $27.50, and some manufacturers are asking $28. The Allegheny Bessemer until the time it changed hands was a free seller of Billets, owing to the scarcity of rail orders, but now that it has passed into the hands of the Carnegie interest there are not so many sellers. It is claimed by those in a position to know that there is not much of a margin for profit even at the prices quoted.

Old Rails.—There is some inquiry again for Iron Rails, chiefly from the Mahoning and Shenango Valley districts, and the market is firmer, with sales reported at $28 @ $28.50. Old Steel Rails continue very dull; long lengths nominal at $18 @ $19.

Wrought Iron Pipe.—While there is not so much new business, the mills are very busy working up old contracts, which will keep them fully employed during the remainder of the year, if not longer. No change in prices. Discounts are as follows· On Black Butt-Weld, 47½ %; on Galvanized do., 40 %; Black-Lap Weld, 60 %; on Galvanized do., 47½ %; Boiler Tubes, 1¼-inch and smaller, 45 %; 2-inch and larger, 50 %; Casing, all sizes, 50 %.

Steel Rails.—There has been very little new business reported here of late, and it is not expected that there will be much buying done until January or February next. Besides, the recent panic in the New York stock market is not calculated to help the Rail market, or to make a demand for Rails. The Allegheny Bessemer Works were closed down on Saturday, having passed into the hands of the Carnegie interest, and will be now employed on Billets. All orders for Rails will be filled at the Edgar Thomson Works.

Railway Track Supplies.—The price of Spikes has been reduced to $2.15, 30 days, f.o.b. on cars at works. Dilworth, Porter & Co. will commence making Steel Spikes on December 1. Iron Splice Bars, $1.95 @ $2.05; Steel Splice Bars, $2 @ $2.10; Track Bolts, $2.90 with Square and $3 with Hexagon Nuts, f.o.b. Pittsburgh.

Old Material.—Business fair; prices without important change. No. 1 Railroad Wrought Scrap, $22.50, net ton; Old Iron Axles, $29 @ $29.50; Old Car Wheels, $17.50 @ $18.50, gross ton; No. 1 Railroad Cast Scrap, $15.50 @ $16; Cast Borings, $12 @ $12.50, gross; Wrought Turnings, $13 @ $14, net; Crucible Steel Scrap, $25 @ $26, net; Leaf Steel, $22 @ $22.50; Open-Hearth Steel, $20 @ $21; Steel Bloom and Rail Ends, $19 @ $20.

Connellsville Coke.—There is no change in the situation; cars are reported in better supply for near-by points, but there is continued complaint in regard to cars for shipment to distant points both East and West. Prices remain unchanged.

Metal Market.

Pig Tin.—The movement of prices the past week has been steadily downward. London quotations show a decline of £4. 5/ ℔ ton, and a fall of 80¢ ℔ 100 lb is recorded in the local market. This sharp break, falling as it has upon the heels of a considerable shrinkage in values during the preceding week, leaves the market in a demoralized condition for the time being, and there is little probability of a change for the better until liquidation in speculative circles shall have spent its force, the rates for loanable funds and the movement of the price of Silver comes again to normal bounds. Not a great deal more than the ordinary volume of business has been transacted in the local market, but our London cables state that considerable spot Tin has been thrown over there and futures taken in its place to some extent. Ten-ton lots were sold here at from 20.95¢, recorded a week ago, down to 20.15¢, net cash, prompt delivery, and deliveries at sellers' option this month or next were offered at nearly the same figures. Wednesday operations showed a weak undertone, yet values seemed to have been given better support here than in London, and it looked doubtful that 10-ton lots could be purchased at less than 20.10¢, net cash, on the spot.

Copper.—Nothing has transpired in the way of business that would afford a clear idea of market value of Lake Superior Ingot. The producers' price is understood to remain at 17¢, but outside lots at 16¼¢ are still offered and find no takers. From Boston there are reports to the effect that the Lake companies are booking orders from consumers for supplies for delivery during the early part of next year, the price to be fixed later on. In this quarter confirmation of such transactions is not obtained and the nearest thing to it is the fact that circular letters have been sent out by a local broker requesting orders on the conditions alluded to. In other varieties of Copper business have been moderate and prices are momentarily uncertain. The figures asked are 15½¢ for Arizona and 14½¢ @ 14½¢ for common casting brands.

Pig Lead.—Prices have declined a little over ⅛¢ ℔ lb during the past week. Since October 6 about 3000 tons of foreign Lead have arrived here, and out of that quantity enough has come upon the market to exert a depressing influence in connection with a further depreciation in values in London. Foreign can be purchased readily at a cost equivalent to 5¢ laid down here, immediate shipment. On latest transactions Domestic Pig went at 4.80¢ @ 4.85¢, in carload lots, for prompt delivery. There were offers at 4.75¢, sellers' option the balance of this month, and at 4.75¢ December and January delivery. Business has been on a moderate scale throughout the weak, despite the lower prices. In the West prices have declined; 4.50¢ was quoted from St. Louis.

Spelter.—The situation is practically the same as it was a week ago. There is no visible increase in the amount of supply offering for early shipment, and the

demand has not improved. Prices are held quite firmly at 6.05¢ @ 6.10¢ for Prime Western.

Antimony.—Sales have been and prices are still in buyers' favor, with 17½¢ quoted for Hallett's and 19½ for Cookson's.

Tin Plate.—The market has remained very quiet. Purchases of spot goods show no improvement in volume, although holders name rather lower prices on Cokes and buyers are manifesting very little interest in futures at the moment. Quotations for round lots on the spot are as follows: Coke Tins—Penlan grade, IC, 14 x 20, $5.40; J. B. grade, do., $5.45. Bessemer do., $5.40. Stamping Plates—Bessemer Steel, Coke finish, IC basis, $5.40 @ $5.45; Siemens Steel, IC basis, $5.50 @ $5.60; IX basis, $6.50. IC Charcoals—Calland grade, IX—; Melyn grade, $6.12½ @ $6.25; for each additional X add $1.50; Allaway grade, $5.87½; Grange grade, $6; for each additional X add $1. Charcoal Ternes—Worcester, 14 x 20, $5.50; 20 x 28, $10.75; M. F., 14 x 20, $8; do., 20 x 28, $16.50; Dean, 14 x 20, $5.15; do., 20 x 28, $10.25 @ $10.37½; D. R. D. grade, 14 x 20, $4.85 @ $4.90; do., 20 x 28, $9.75; Mansel, 14 x 20, $4.95 @ $5; do., 20 x 28, $10; Alyn, 14 x 20, $5; do., 20 x 28, $10; Dyffryn, 14 x 20, scarce; do., 20 x 28, $10.50; Wasters—S. T. P. grade, 14 x 20, $4.65; do., 20 x 28, $9.50; Abercarne grade, 14 x 20, $4.60; do., 20 x 28, $9.37½.

New York Metal Exchange.

The following sales are reported:

THURSDAY, November 13.

15 tons Tin, spot.....20.90¢

FRIDAY, November 14.

10 tons Tin, March .....20.95¢
10 tons Tin, spot.....20.80¢
10 tons Tin, December .....20.75¢
50 tons Tin, November.....20.80¢
15 tons Tin, December.....20.80¢

SATURDAY, November 15.

10 tons Tin, February.....20.75¢
10 tons Tin, spot.....$20.60

MONDAY, November 17.

30 tons Tin, spot.....20.30¢

TUESDAY, November 18.

20 tons Tin, spot.....20.15¢
10 tons Tin, January.....20.15¢

Imports.

Hardware, Machinery, &c.

Boker, Hermann & Co., Arms, cs., 38; Anvils, 289
Booth Bros., Mach'y, pgs, 19
Folsom, H. & D. Arms Co., Arms, cs., 9
Field, Alfred & Co., Anvils, 10; Hdw., cs., 8
Godfrey, Chas. J., Arms, cs., 4
Hammacher, Schlemmer & Co., Nails, cs., 42
Hartley & Graham, Arms, cs., 24
Lau, J. H. & Co., Arms, cs., 25
Meacham Arms Co., Arms, cs., 21
Oastler, W. C., Mach'y, cs., 3
Pilditch, A. S., Hdw., cs., 6
Schoverling, Daly & Gales, Arms, cs., 30
Swarzenbach, Huber & Co., Mach'y, cs., 14
Vom, Cleff & Co., Iron Ware, cs., 19
Ward, Jas. E. & Co., Mach'y, pcs., 78; ditto, cs. and bbls., 47
Wiebusch & Hilger, Arms., cs., 13
Wyman, C. H. & Co., Arms, cs., 16

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, November 19, 1890.

Operations in Pig Iron Warrants have been on a very moderate scale, but prices have averaged lower under the weight of unfavorable financial conditions. Scotch sold down to 49/, Cleveland to 45/6 and Hematite to 56/10½. Weak "bulls" have disposed of nearly all their holdings, and the bulk of the supply is in strong hands. There is quite a large "bear" account open. Fresh operations are deterred by the uncertain financial situation. Consumers are booking orders for forward delivery, but shipments at present are moderate. Makers' stocks are almost *nil*, and the total in Connals' Stores has been cut down 4433 tons the past week. Additional Hematite furnaces are blowing out, owing to enhanced cost of production, due to dear fuel.

After a temporary recovery the spot price of Pig Tin dropped to £89. 10/. Outside influences continue to restrain purchases for speculation. The chief feature of the week has been continued liquidation of cash prompts, partly replaced by forwards. The quantity thus sold has been absorbed and spot stocks are small. The consumption is good.

Copper has been unsettled, with as low as £54. 7/6 reached on Merchant Bar prompts. The depression is attributed wholly to the financial crisis. Largest holders refuse to sell at present prices and only small cash lots are offering. Consumers are buying for immediate wants only.

Prices for Tin Plate are held very steady. Makers keep well sold up, and some have orders for delivery as far ahead as March. Inquiries from America have been more numerous, resulting in several orders being placed, chiefly for Coke. Stocks at British shipping ports are 330,000 boxes, against 360,000 boxes held a year ago.

Old Iron has been in better demand for home account, but there is very little export demand at present.

Scotch Pig Iron.—There is very little doing in Makers' Iron, and values are uncertain. Very few brands offered.

No. 1 Coltness, f.o.b. Glasgow .....
No. 1 Summerlee, " " 66/
No. 1 Gartsherrie, " " .....
No. 1 Langloan, " " .....
No. 1 Carnbroe, " " 53/9
No. 1 Shotts, " at Leith.....
No. 1 Glengarnock, " Ardrossan.....
No. 1 Dalmellington, " " .....
No. 1 Eglinton, " " 51/9

Steamer freights, Glasgow to New York, 2/, nominal; Liverpool to New York, 10/.

Cleveland Pig.—Prices are demoralized by the depression in warrants, and very little business is doing. Makers quote 47/ @ 47/6 for No. 3 Middlesborough, f.o.b.

Bessemer Pig.—Very little business passing and prices irregular, in sympathy with warrants. Makers quote West Coast brands, Nos. 1, 2 and 3, at 58/6, f.o.b. shipping port.

Spiegeleisen. — Prices are somewhat lower, but demand continues fair. English 20 % quoted at 100/, f.o.b. shipping port.

Steel Rails.—New business has been moderate and prices are rather weaker. Heavy sections quoted at £5 and light sections £6, f.o.b. at N. W. England shipping point.

Steel Blooms.—Demand is fair, but offerings are freer and prices tend more or less in buyers' favor. Makers quote at £4. 15/ for 7 x 7, f.o.b. at N. W. England shipping point.

Steel Billets.—Makers' prices are reduced somewhat, but there is yet a fair business. Bessemer, 2½ x 2½ inches, £5 f.o.b. at N. W. England shipping point.

Steel Slabs.—Business moderate and prices rather weaker. Bessemer quoted at £4. 17/6, f.o.b. at N. W. England shipping point.

Old Iron Rails.—Sales to home trade have been made at rather lower prices. Tees quoted at £3 @ £3. 2/6 and Double Heads £3. 2/6 @ £3. 5/, f.o.b.

Scrap Iron.—The demand is light and prices are weaker. Heavy Wrought quoted at £2. 5/ @ £2. 6/2, f.o.b.

Crop Ends.—Very little movement and prices without change. Bessemer quoted at £3 @ £3. 2/6, f.o.b.

Tin Plate.—Prices are held firmly. Demand is fair. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade.....18/9 @ 19/3
IC Bessemer Steel, Coke finish.....17/9 @ 18/
IC Siemens " " " .....18/ @ 18/3
IC Coke, B. V. grade.....17/3 @ 17/6
Charcoal Terne, Dean grade.....17/ @ 17/3

Manufactured Iron.—There has been little doing and prices are without change. We quote, f.o.b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Marked Bars	.....			@	9	0	0
" Common "	7	0	0	@	7	5	0
Staff. Bl'k Sheet, singles	8	0	0	@	8	2	6
Welsh Bars (f.o.b. Wales)	6	7	6	@	6	10	0

Tin.—The market unsettled and prices very irregular. Straits quoted at £89. 10/, spot, and £90. 5/ for three months' futures.

Copper.—Values are unsettled and irregular. Merchant Bars sold at £54. 7/6, spot, and £54. 15/, three months' futures. Best Selected, £62.

Lead.—Prices have further declined on a light business. Quoted at £13. 10/ for Soft Spanish.

Spelter.—The market unsettled. Prices irregular. Quoted at £22. 7/6 for Ordinary Silesian.

REVIEW OF THE WHOLESALE MARKET IN PAINTS AND OILS.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

Paints and Colors.

Probably the most interesting feature in connection with the Paint trade is increasing evidence that prices of Linseed Oil are likely to be lower in the near future. A reduction in the price of that commodity would cheapen the cost of various descriptions of Mixed Paints, also that of inferior White Lead in Oil, and possibly operate to bring about a reduction in the price of the pure pigment. However, matters are not as yet in such shape that manufacturers have taken any steps in the direction of revising their quotations, and it is claimed that as a good many articles have been selling at prices relatively lower than what the cost of Oil warranted all changes that buyers may look for will hardly be realized. As regards the general market there is nothing new to report. The distribution of leading articles in the line of house painters' goods has been fairly liberal, despite somewhat unfavorable weather conditions, and grinders' specialties have also met with very fair sales, chiefly at old prices

White Lead.—There is little or no pure carbonate except the brands of corroders identified with the National Lead Trust offering in this market at the present time and the corroders have made no changes

in their prices. Large buyers are of the opinion that prices may be reduced ere long, should the cost of materials further depreciate, as seems probable, and are therefore extremely cautious. The movement of supplies into the channels of consumption is well in line with the average for this season of the year, however, and the sales of cheap Leads are said to be satisfactory in volume also. Hence the market preserves fairly good form in the face of rather uncertain surroundings and list prices for pure pigment are not shaded to any greater extent by jobbers.

Zincs.—The position of the market for this article is wholly unchanged. Fewer orders for round lots of domestic for future delivery are coming in, but the distribution of both foreign and domestic product is yet of very good volume. The supply of crude material is still comparatively moderate and the cost continues high.

Colors, &c.—Manufacturers are securing some crude materials at rather lower prices, as, for example, Prussiate Potash and Quicksilver, but no change has been made in prices of Colors into the composition of which those goods enter. Apart from the above the surroundings are practically the same as they have been for some little time past, with trade rather quiet at the moment. Ready mixed Paints have been selling fairly in moderate quantities.

Miscellaneous.—There has been no change in the market for Chalk, Whiting, Paris White or Clays. Prices are practically the same as they were last week, and the demand is moderate.

Oils and Turpentine.

Linseed Oil.—The price of domestic seed has declined considerably under the weight of general speculative depression, and Western manufacturers of Oil are offering their products in Eastern markets at lower figures. Firm offers at 57¢, for example, were freely made in this market, and bids of 56¢ have been solicited. Local manufacturers have made no change in their prices, and seem disinclined to do so until convincing evidence is found that Western Oil is taken in the place of city. Should the low price of the former divert attention from the product of local crushers it is highly probable that prices of city made Oil will be dropped 2¢ or 3¢.

Cottonseed Oil.—There has been no improvement in the condition of the market. The arrivals still consist chiefly of low grade product, and there is only a narrow outlet. Even prime quality stock finds slow sale. Owing to the small supply here the latter bring fairly good prices, but the inferior grades go at very irregular rates.

Lard Oil.—A sharp decline in the price of raw material has had a rather depressing effect upon the market for Lard Oil and best brands are now offering at 50¢. There is no perceptible improvement in the demand, however, and the market is dull as well as weak.

Fish Oils.—There have been no important transactions in any class of crude products the past week, and values have shown no change. The principal holder of Menhaden products has withdrawn all offers. Slightly higher prices are quoted for manufactured Whale Oils.

Other Oils have undergone no change in value, and business has been of rather small volume all along the line.

Spirits Turpentine.—Local operations have been on a rather small scale in the local market, and, after advancing somewhat, prices are again weak, with sellers at 40¢ @ 40½¢, here. The supply is now about 1700 barrels here and 13,000 barrels at the Southern centers.

On Saturday night an explosion of crude petroleum in the Crane Company's Pipe Mill, Chicago, caused a fire which almost totally destroyed the building and damaged machinery and stock to the extent of $30,000. Petroleum was used as fuel, and the overheating of the tank which feeds the furnaces caused the explosion. The mill is operated night and day, except Saturday night, when the plant is shut down at midnight. It was but a few minutes after the last workman left the building that the explosion occurred, and the building was blazing at every point almost instantly. The building was burned a few months ago, and oil furnaces were then put in as a safegard against fire. Back of the mill is a storehouse, containing a large amount of stock. This was not touched by the fire. Altogether the damage by water was considerable. The firemen saved the adjoining buildings, but could do nothing with the pipe mill, as it was covered with oil.

Commercial Development of Mexico.

Mexico appears to be progressing commercially by leaps and bounds. The British Consul at Vera Cruz in his last report observes that that port shares in this prosperity; 1888 was a most prosperous year, but 1889 was an advance on it in every direction. The customs receipts increased 12½ per cent.—viz., from $8,796,795 to $9,778,425. The traffic returns of the Mexican Railway Company point in the same direction, and show an increase of 12½ per cent. in the tonnage received at the Vera Cruz Station and an increase of 11½ per cent. in the total tonnage carried. Only a comparatively small proportion of this increased tonnage represents railway material for lines in construction, which is, of course, a mere temporary source of prosperity. The shipping returns are equally satisfactory, though the number and tonnage of sailing ships were less in 1889 than in 1888. But this is of comparatively trivial importance, as the number of steamers increased 14 per cent. and their tonnage 12 per cent., while the number of British steamers increased 16 per cent. and the tonnage 9 per cent. It is important to remark that most of the extra British ships brought full cargoes to the port. The imports from all countries increased 27 per cent. and from England 76 per cent., but these enormous increases are in a great measure represented by railway material, machinery, coal, &c. England sent to Mexico in 1889 cotton goods to the value of $2,544,075, chiefly common calicoes and prints, the duties on which are equal on an average to 133 per cent. ad valorem, while the average of all duties levied at Vera Cruz is 91 per cent. ad valorem, so that English cottons pay 42 per cent. more duties than their share. It is, of course, to the prevailing policy of protection that these high duties must be ascribed; but, as a matter of fact, they are much higher than is necessary for that purpose, as may be seen from the enormous profits made by the home manufacturers, who are principally foreigners. Very recently a syndicate of Frenchmen made a "corner" in Mexican made common prints, and were able to raise the price of the "cornered" article 30 per cent., the enormous import duty saving the "cornerers" from competition by foreign made prints.

Exit the English Syndicate.—One of the results of the financial collapse in London will be that Americans will hear very little for a good time to come of the "English Syndicate." That much abused term will disappear from the columns of our newspapers and from the minds of our promoters. It is a question now whether some of the transactions closed during the past year will not be rendered invalid. In many cases payments were to be made in installments. It is more than likely that in some instances these will be defaulted on and the properties will revert to their original owners.

Forged Car Wheels.

An experiment was recently made at the works of the Buffalo Steam Forge Company, Buffalo, N. Y., for making forged car wheels direct from the ingot, under the patents of James A. Facer, of Germantown, Pa. The Buffalo *Courier* describes the operation as follows: Given sized ingots of open hearth steel, to make when finished the required diameter wheel, are placed in the furnace, and when properly heated are put under what is termed hammer No. 1, in which are adjusted the first set of patented dies. After the ingot has been thoroughly hammered on the circular side, or what afterward becomes the tread and flange of the finished wheel, it is upset and by skillful hammering reduced to a thickness that is somewhat greater than the wheel will be when finished. Then the billet, as it is now termed, is dropped onto a projection on the front face of the lower die, which is so shaped as to represent a portion of the tread and flange of a finished wheel. There is a corresponding projection on the upper die. The billet is now turned slowly and the dies strike a new portion of the tread each time they come together. A steel peg is set up so as to permit the hammer to descend only so far, and thus the diameter of the sized wheel required is maintained. After the tread and the flange have been perfectly formed there is a complete car wheel minus the sides, which are entirely flat, and the absence of a hub. This ends the process on the first set of dies.

The disk, as it might now properly be called, at this stage is passed to hammer No. 2, on which are fixed the finishing dies. These dies are of the exact shape of the desired car wheel when finished, with the exception that will be noted hereafter in the case of wheels of large diameter. After the disk is exactly centered in the lower die, which is done by automatic gauging tools, the hammer is set in motion and in very short time the hub is formed, the sides of the wheel reamed out, the tread driven up against the barrel of the die and made exactly round and true. The only thing yet remaining to be done to the wheel is to bore the center for the axle. The exception, as noted above, in wheels of large diameter, is only in the fact that the disk goes from the first hammer to a set of fullers in the second hammer that forms the hub and partially reams out the wheel, and they go to the third set of dies and are there finished. Porch, Gibb & Rogers, of Philadelphia, are the general agents of the Forged Steel Car Wheel Company.

The Globe Iron Works Company, of Cleveland, will launch the Menominee Transit Company's steamship German on the 19th inst.

An air brake for street cars is a subject of a recent invention which is now undergoing the experimental stage in Chicago. It is of special value in connection with cable railway trains. The air is piped from car to car, controlled by a lever in the hands of the gripman in front, and simultaneously operates on all the wheels in the train.

It is reported that an Ohio wire nail concern has endeavored to acquire by purchase a large wire rod and nail mill in Western Pennsylvania.

HARDWARE.

Condition of Trade.

WHILE THE reports printed below, representing trade in different parts of the country, generally refer to the satisfactory condition of business, it will be observed that they report also a somewhat diminished volume. Their general tenor is, however, very gratifying, and they indicate the prosperity of the country and the continued large consumption and sale of goods. Manufacturers refer to the demand as continuing well, considering the advanced stage of the season, but are in most cases pretty well up with their orders. During the period of comparatively inactive trade it is hoped that they will pursue a conservative course and not endeavor to book orders for next year's trade at unnecessary concessions in price. The indications are that business throughout the country for the remainder of the season and for the opening of the year will be fully up to the average. The present tone of the market in prices is not materially different from that which has prevailed for a few weeks past, there being indications of something of a weakening in some leading goods, so that the market as a whole is not characterized by an especially strong feeling. Some complaint is made in regard to collections, especially in the East, and the recent condition of the money market has not tended to increase confidence in financial and mercantile circles.

St. Louis.

(*By Telegraph.*)

Hardware trade during the past two weeks has been very active. Jobbers of Shelf Goods are enjoying an excellent business and the outlook for a gradually increasing trade from now on through the winter months is regarded as very promising. The pleasant weather at present prevailing keeps the building trades actively employed and the demand for Builders' Hardware is correspondingly large. Barb Wire is moving quite freely and the demand is about equal to the supply. Small lots of Painted are quoted at 2.80¢, Galvanized being 0.6¢ additional. Wire Nails are selling freely at $2.35, f.o.b. cars St. Louis. Notwithstanding the financial flurry in the East, collections are reported to be universally good.

Chicago.

(*By Telegraph.*)

Hardware jobbers continue to report a very active trade. The volume of business promises not to vary much from that of last month, unless the shrinkage in the demand for Nails and other heavy goods may yet make a difference in that respect. The past few weeks have witnessed an extraordinary demand for building material, owing to the remarkably favorable weather for outdoor work. A gratifying feature of the situation is the excellence of collections. Jobbers are surprised at the way in which money flows in. Several houses report that thus far more money has been received this month than in October. The West seems to be in excellent shape, with its business on a solid foundation. Wire Cloth is now quoted at $1.50 in quantity, but not firm at that figure. Everything else in the Hardware line seems to be firm except Nuts and Machine Bolts, which are slightly easier, because factories are catching up with orders.

Louisville.

W. B. BELKNAP & Co.—Despite financial earthquakes in Eastern money centers and unlimited promises of further panics, legitimate business holds its own even way with very little disturbance either in respect to prices or volume. The consuming ability of the country is infinitely larger than any one dreamed of a short time ago, and the manufacturers are kept comfortably busy to supply that. It is hard to get generally assorted orders in almost any of goods filled promtly, however anxious the seller seems to take the order; so while there is not much fear of decline there is evidently no anticipation of advancing prices. Manufacturers seem to be rather interested in getting their order books well filled far in advance of the season. The railroads are still unusually slow in their deliveries, and have evidently not worked out of the congested condition of last summer. The time taken from Eastern points is from one-half to two times as long as what was considered regular a year or two ago; while freight moving between interior points is, as a rule, indefinite, its delivery cannot be counted on at all. The roads hereabout, as a rule, are holding their own as to earnings compared to last year, which was an extraordinary increase over anything previous. The L. and N. and some others of our connecting lines even show an increase over 1889, and their large and numerous trains attest a trade grown beyond their ability to readily handle. Notwithstanding this and the promise of a dividend in January, L. and N. stock has tumbled off by reason of foreign selling from over 90 to below 70. As one of our local paragraphers has rather happily put it, "the Anglomaniacs must certainly be satisfied with the present imported article of panic. There is a genuine London flavor in all the returned certificates." The fact is that the English people, having invested their money in South America and African schemes, find it impossible to realize upon these, but sell the best things they have in order to raise money—namely, American securities. What an immense profit there is here to those who can buy back at a discount of 20 points. Altogether, therefore, the situation is not without its redeeming features.

Omaha.

LEE-CLARKE-ANDREESEN HARDWARE Co.—As the season advances and the year draws toward the close we have to report a continued and very satisfactory volume of business to date. Other than advances in prices of some imported goods, occassioned by the recent legislation, changes in values by home manufacturers have been few and unimportant. The tone of the general market exhibits a firm and quiescent *ensemble*. Satisfactory crops, with large and rapid development of industrial enterprises in all directions, combine to exert a marked influence in all departments of trade. It is to be hoped that the money stringency in Eastern financial centers is temporary only. Should it extend westward many enterprises would undoubtedly be delayed and perhaps embarrassed until the situation resumed its normal condition. Just now no clouds appear on the business or political horizon to cast any doubt on future prosperity.

Boston.

BIGELOW & DOWSE.—Two weeks ago trade was upset by the unusual interest every one had in the elections, but since the result was settled there has been a marked improvement in the volume of business. Salesmen on the road are sending in good sized orders and the store trade is excellent. Stocks in the hands of retailers are light and need constant replenishing. From all sections of New England there are good reports and there is nothing but the black cloud hanging over the financial world that will interfere with a good trade the balance of the year. Many Eastern capitalists, being dissatisfied with the uncertainty attending Western railroad enterprises, are now making solid investments in real estate and building improvements here at home, which benefit the Hardware manufacturers and dealers. Prices are still very low, but there are no material changes.

Baltimore.

CARLIN & FULTON.—Business in this market is as good as can be expected at this time of the year, November never being considered a heavy month. Locally, there is a good demand for Builders' Hardware, and for machinists' and contractors' supplies; there is also a fair demand from our near trade for seasonable goods, but in the South it may be considered as "between seasons." The average American, if anything, is a politician, and after the recent elections, before settling down to business, he needs some little time to get rid of either his despondency from defeat, or exhileration after victory, but we hope now, with the results known, that trade will soon resume its regular channels, as far as a stringent money market will permit. We understand that many of the farmers through-

out the country have been holding their crops of cotton and wheat, hoping for the advantage of higher prices, and influenced, perhaps, especially in regard to cotton, by a number of sensational schemes published in the papers, in regard to promised advances to be made on shipments to some unknown English syndicate; but the high price for money and consequent lack of bank accommodation will probably result in these crops being thrown upon the market and at reduced prices, which, while hard upon the planter, will, however, put more money in circulation, and enable the retail merchants to meet their maturing obligations. In regard to prices of Hardware, those goods which are in combinations or trusts will probably be held firmly, but we think on such goods as there is an open market for, unless there is a very active demand, we may possibly see some slight shrinkage in values before the end of the year.

Cleveland.

THE W. BINGHAM COMPANY.—Conditions of trade are about the same as noted by us in your issue of the 6th. The volume of business continues as large as it was during October, and there has been somewhat of an improvement in the weather, although it is milder than is usual for this season, and the trade on fall goods, such as Skates, Sleigh Bells, &c., is almost *nil*, the experience of the last two years having made merchants cautious about buying goods whose sale is dependent wholly upon the weather. Collections are beginning to show the effect of the poor roads, as anticipated in our last. Money market still tight, the condition of things in Wall street not having had a tendency to ease it up any.

St. Paul.

FARWELL, OZMUN, KIRK & CO.—The condition of business is very satisfactory, and sales are heavier than for the same season last year. Shelf Hardware is moving freely, with prospects that the demand will continue well into the winter. Orders for seasonable goods are especially heavy. The delays of some manufacturers in shipping orders has made it very difficult to keep stocks full on all lines. Freight rates advance between Chicago and this point to a basis of 60 per cent. first class on the 17th inst. The retailer who has a good stock of staples on hand can consider himself fortunate. Prices on all lines are firm and many cases advancing. Collections this fall have been later than last year, but with the movement of grain are now improving. The farm products are bringing good prices, which will enable the farmers to discharge their obligations to merchants and place them in good shape for the coming year.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—It is safe to say that the minimum of trade during the year was touched during the last two weeks, all of which goes to show how quickly trade may be demoralized when politics is permitted to enter into business matters. We think the entire country will agree with us in saying that it is a great misfortune that these matters come before the public as frequently as they do. It is strange how little the effects of the tariff are understood throughout the country and how few goods are affected by its passage. We have been surprised, in conversation with many of our customers, to know how little this is understood. It appears to be the general opinion of many in the trade that it will cause advances all along the line, not only in Hardware, but in other goods. Whereas the custom house receipts on tariff duties, providing the same amount is imported as heretofore, really will show a diminished revenue of $40,000,000 to $50,000,000, therefore being practically a reduction in duties. Many persons have aired their opinions throughout the country while traveling with their ordinary business duties, and in many cases their opinions were incorrect and in other cases misunderstood. Outside of the item of Cutlery the advances to the Hardware dealer are nothing. Tin Plate, of course, is an exception to the rule. In this there has been quite an advance, intended to stimulate the manufacturing of same in this country. Whether it will have the desired effect remains to be seen. We do know, however, that arrangements are being made for two or three establishments to be started in this country, and also are aware of the fact that one or two of the leading firms are looking into the advisability of transferring a portion of their business to this country. This must eventually end in Tin Plate reaching the consumer at a less price even than formerly. Mail orders have been affected, we presume, because dealers have been giving more attention to conversation on election returns than usual, although we can report an increase within the last few days; all of which goes to show that dealers will not for any length of time neglect their business for political matters or other outside purposes. Those who do this usually find themselves behind in the procession to others, who will take advantage of the situation. Orders from salesmen have also increased within the last few days, showing conclusively that there is an easier feeling than there was for the preceding nine days. Fortunately those located in the money centers find that the financial disturbances have been confined principally to those centers, and have not extended throughout the country, where money has been frequently sent for agricultural products, and reaches the hands of the producers, and from them to the hands of the trade and back to the money centers; consequently they have not suffered very materially through the financial disturbance the last 10 days. Remittances may therefore be considered fair, and from those quarters where indications show attention to business rather than politics, it is quite up to the average. There are but few changes in prices of Hardware to note. The advance in the price of Copper Rivets and Burrs of 10 per cent. being about the exception.

Portland, Ore.

FOSTER & ROBERTSON.—The excellent trade which has fallen to our lot since the floods of February still continue without interruption, thanks to the delightful weather with which we have been favored—weather of which the people of the East, who have never visited this Coast, can have no fair conception. Enough of rain to clothe our fields and lawns with the beautiful fresh green of spring time, but not enough to interfere with out door work; cool enough to make physical exertion comfortable, but not frost enough to injure the flowers that still grow luxuriantly in the open air. There has been no particular change in prices, but a little more diffculty is experienced in selling at the advanced figures mentioned in our last communication. This, we think, is due in a large measure to the efforts of our local daily paper, the *Oregonian*, an able journal, by the way, which, for political reasons has been endeavoring to show that the advances were but selfish attempts on the part of the trade to take a dishonest advantage of the people, not justified by the fact of the tariff legislation. Collections, which have for a short time shown a sluggish tendency, owing, as has been stated, to a slight decline in grain, have brightened up considerably and are now of good volume. Some time ago we mentioned the fact that Portland would in due season have two of the handsomest retail Hardware stores on the Coast, or, for that matter, on the Continent. This promise we can now say has been fairly realized, or soon will be. Some time ago Honeyman, De Hart & Company, moved into their new retail store, which faces on First street, just in the rear of their wholesale department, which faces on Second street. It is said that H., De H. & Company carry the largest stock of Railroad and Blacksmith Supplies, of which they make a specialty, on the Coast. Dayton, Hall & Avery are at the present time moving into and fitting up their new retail store in the Wildwood Block—a new brick structure 56 feet wide and 160 feet deep. They will occupy three floors above ground, running the entire length of the building and a basement of the same size. Their salesroom will be fitted up with all the most modern appliances, and will have few equals anywhere between the oceans. They make a specialty of foot power machinery, and also of Wildwood tools.

Prices.

Cut Nails.—So far as the Eastern market is concerned, there has been no material change since last week, the regular quotations being as follows: $1.80 at mill and $1.90 at dock. Small lots from store are quoted at $2. Steel Rails are 10 cents per keg higher. The market is still affected by recent and present quotations from Wheeling, the effect of which has been to demoralize prices somewhat, as Western jobbers have been disposed to sell at the same figures, and, as a consequence, some of the large houses have been

offering round lots at exceptionally low prices. In this market Wheeling quotations have the effect of making Eastern Steel Nails yield somewhat in price. They are accordingly not characterized by as much regularity as Iron Nails.

Chicago, by Telegraph.—Manufacturers' prices are now so low that heavy buying has been stimulated. The demand has been better for the last ten days than for the whole of the previous month. Merchants consider the time auspicious for stocking up, but nearly all the business now being done is for prompt delivery. Orders for January shipments at present prices are known to have been refused. The price from factory for the general trade is about $1.85. Chicago jobbers quote $1.90 from stock, but make special prices to suit circumstances.

Wire Nails.—Since our last review there has been a slight settling in price, and $2.15 for carload lots at mill may be named as the present quotation. The volume of business is only moderate, owing to the fact that trade is entering on what is usually its dull season, and buyers are not disposed to purchase in excess of their requirements. Some good orders have, however, it is understood, been placed. The regular price for small lots from store is $2.50.

Chicago, by Telegraph.—Manufacturers' agents are naming the same price as last week, so that the market seems to be at least no more demoralized than it was then. Manufacturers are disposed to sell for sharp delivery only at the present low rates. The leading mills are well supplied with work, and some of them are refusing to meet the lowest prices now current. Jobbers quote $2.50 from stock, but make concessions according to circumstances.

Barb Wire.—Comparatively little is doing in this market. Prices are weak and on a basis of 3.10 @ 3.15 cents for carload lots of Four Point Galvanized at mill, Painted being held at 2.60 @ 2.70 cents.

Chicago, by Telegraph —The market is weak, with a light demand. Small lots continue to be quoted at 2.9 cents for Painted and 3.5 cents for Galvanized, but slight concessions are made on these rates. Manufacturers' prices for carloads are 2.7 cents and 3.25 cents respectively.

Cordage.—There has been no important change in the Cordage market since our last issue, the quotations then given being still made, we understand, by many leading manufacturers. Revised prices are, however, announced by Plymouth Cordage Company, Plymouth, Mass., as follows, there being the usual ⅛ cent per pound discount to the trade:

	Per lb.
Manilla, ½ inch and larger	14 ¢
" ⅜ "	14½¢
" ¼ and 5/16 inch	15¢
" Tarred Rope	13½¢
" Hay Rope	14 ¢
Sisal, ½ inch and larger	9½¢
" ⅜ "	9¾¢
" ¼ and 5/16 inch	10½¢
" Hay Rope	9½¢
Tarred Rope	8¾¢
Sizal Medium Lath Yarn	7½¢
New Zealand, ½ inch and larger	8½¢
" " ⅜ "	9½¢
" " ¼ and 5/16 inch	9¾¢
" " Hay Rope	8½¢
" " Tarred Rope	8¼¢

The present prices ruling in Cordage are generally regarded as very low, and are referred to by manufacturers as not remunerative. The decline is caused in part by the falling off in demand, but the disagreement among the manufacturers has a good deal to do with it, and the low prices which are made are regarded by many as offered with a view to securing control of the market. Whether or not the houses outside of the combination will be brought into entire harmony with it remains to be seen. The unsettled condition of the money market is also referred to as having something to do with the recent break in prices.

Glass.—The situation in the Glass market remains unchanged since our last issue. While the Pittsburgh price remains 80 and 5 per cent. discount for small lots and 80 and 10 per cent. discount for carloads, there are indications that these prices can be shaded in special cases and under favorable circumstances. The factories in the Eastern district are still making prices from 5 to 7½ per cent. better than those named An adjourned meeting of the American Window Glass Company will be held at Chicago on the 25th of this month, when it is expected that final action will be taken in regard to the future working of the company. It should be understood in this connection that the American Window Glass Company have been formed and the officers elected, but as yet have done no work. There are some interests which have not yet signified their willingness to identify themselves with this company, notably the factories controlled by ex-Governor Foster, of Ohio, which, it is estimated, represent 10 per cent. of the annual output. It would appear that it will be necessary to secure the co-operation of these factories for the successful operation of the association. It is also intimated that although Secretary Frazee has signed for the United Glass Company, and has been elected secretary of the American Window Glass Company, there is no certainty that the Executive Committee of the United Glass Company will ratify his action. The reason given for this is that the result of the United Company's joining the American Company would make the organization unwieldy, especially as the interests of the United Company are largely in the East and their sales are made in less than car lots; and to have such orders go to Pittsburgh first to be distributed would embarrass buyers and throw the trade into the hands of the New Jersey and Eastern Pennsylvania makers. It may be that they will remain a separate organization which will act in harmony with the American Window Glass Company as to prices, &c. There are no changes in the price of Imported Glass. The demand for both American and imported continues satisfactory.

Fish Hooks.—The American Fish Hook Company, New Haven, Conn., for whom the Alford & Berkele Company, 77 Chambers street, New York, are agents, have issued a revised list of their extensive line of Fish Hooks. The revision removes, we are advised, inequalities in the former list and conforms to the present cost of production. The list gives the price per 1000, except as otherwise stated, and is subject to a discount of 60 per cent., 30 days, net:

Superfine Kirby Bent Fish Hooks.

Nos	12/0	11/0	10/0	9/0	8/0
Flatted or Ringed	$19.00	14.00	9.00	7.50	5.50
Nos.	7/0	6/0	5/0		4/0
Flatted or Ringed	$4.15	3.10	2.75		2.30
Nos.	3/0	2/0	1/0		1 to 12
Flatted or Ringed	$1.93	1.68	1.50		1.25

Superfine Limerick Fish Hooks—Spear Pointed.

Nos	12/0	11/0	10/0	9/0	8/0
Flatted or Ringed	$19.00	14.00	9.00	7.50	5.50
Nos.	7/0	6/0	5/0		4/0
Flatted or Ringed	$4.15	3.10	2.75		2.30
Nos.	3/0	2/0	1/0		1 to 12
Flatted or Ringed	$1.93	1.68	1.50		1 25

Superfine Limerick Fish Hooks—Hollow Pointed.

Nos.	10/0	9/0	8/0	7/0
Flatted or Ringed	$14.00	11.20	9 20	7.60
Nos	6/0	5/0	4/0	3/0
Flatted or Ringed	$6.40	5.20	4.60	4.00
Nos	2/0	1/0		1 to 12
Flatted or Ringed	$3.40	2.80		2.40

New York Trout or Carlisle Hooks—Blued.

Nos.	7/0	6/0	5/0	4/0
Flatted or Ringed	$6.65	6.00	5.25	4 65
Nos.	3/0	2/0	1/0	1 to 12
Flatted or Ringed	$4.25	4.00	3.75	3 30

Aberdeen Trout Hooks.

Nos	4/0	3/0	2/0	1/0
Flatted	$5.50	5.00	4.50	4.25
Nos.	1	2		3 to 8
Flatted	$4.00	3.75		3.50

Elastic Steel Kirby Bass or Salmon Hooks.

Nos.	3/0	2/0	1/0	1	2
Flatted	$9.25	8.00	6.75	6.25	5.80
Nos.	3	4	5		6 to 10
Flatted	$5.00	4.25	3.75		3.25

Superfine Kinsey Trout Hooks.

Nos.	6	7	8	9
Flatted or Ringed	$8.00	7.50	6.50	5.50
Nos.	10	11	12	13 to 16
Flatted or Ringed	$4.50	4 00	3.50	3.3[illegible]

Genuine Virginia Fish Hooks.

Nos.	3/0	2/0	1/0	1
Flatted	$16.00	14.00	12.00	10.00
Nos.	2	3	4	5
Flatted.	$9.00	8.00	7.20	6.40
Nos.	6	7	8	9
Flatted	$6.00	5 20	5.00	5.00

Best I. P. Cod or Blue Fish Hooks—Japanned.

Nos.	1/0	1	2	3	4
Flatted	$.0.00	17.00	14.00	12.25	9.00
Ringed	26.50	22.75	18.25	14 00	10.50
Nos.	5	6	7		8
Flatted	$7.00	5.95	4.90		4.25
Ringed	8.40	7.00	6.00		5.25

Best I. P. Cod or Blue Fish Hooks—Tinned.

Nos	1/0	1	2	3	4
Flatted	$24.00	21 00	18.00	16.25	13.00
Nos.	5	6	7		8
Flatted	$11.00	8.00	7.50		6.50

Best Kirby Sea Hooks—Japanned.

Nos.	1	2	3	4
Flatted	$18 00	14.70	11.50	10.00
Ringed	20.00	16.00	12.50	11.00
Nos.	5	6	7	8
Flatted	$7.50	5.50	4.50	3.50
Ringed	8.50	6.50	5.25	4.25
Nos.	9	10	11	12
Flatted	$3.00	2.25	2.00	2.00
Ringed	3.50	2.75	2.50	2.50

Best Kirby Sea Hooks—Tinned.

Nos.	1	2	3	4
Flatted	$22.00	18.00	15.00	12.00
Ringed	24.00	20.00	16.00	14.00
Nos.	5	6	7	8
Flatted	$10.00	8.00	6.50	5.00
Ringed	11.50	9.00	7.00	6.00
Nos.	9	10	11	12
Flatted	$4.00	3.00	3.00	3.00
Ringed	4.50	3.75	3 50	3.50

Central Draft Hooks—Eyed, Ringed or Flatted.

Nos.	10	11	12	13
Per gross	$3.00	2.50	1.80	1.50
Nos.	13¼	14	15	16
Per gross	$1.45	1.40	.95	.70
Nos.	17	18	19	20
Per gross	$0.62	.55	.50	.50

Best Drop Point Mackerel Hooks.

Nos.	A1	2	3	4	5
	$5.50	5 00	4.50	4.00	3.50
Nos	B1	2	3	4	5
	$5.50	5.00	4.50	4.00	3.50

Best Cast Steel Blackfish Hooks.

Nos.	1	2	3	4	5
Flatted	$7.00	6.00	5.00	4.50	4.00
Nos.	6	7	8	9	10
Flatted	$3.75	2.50	3.00	3.00	3.00

Halibut Ringed.

Nos.	1	2	3
	$150 00	110.00	90.00

Wire.—The new competition which has within a comparatively recent time entered the market has the effect of giving some irregularity to quotations on Wire, as concessions are naturally made in marketing the goods. Prices are accordingly slightly lower and somewhat irregular. The volume of business is, however, very satisfactory.

Wire Cloth.—The Wire Cloth market is in an unsatisfactory condition as regards prices, there having been in the last two months a decline of about 15 cents, making the price now ruling about 10 per cent. lower than that which prevailed last year, and some manufacturers are offering to make contracts with guarantee of price against further decline. This demoralization is caused principally by the appearance of several new concerns in the market during the past two years, with a consequent production in excess of the demand. Since the supply of Wire Cloth is thus largely increased the older manufacturers have found it necessary to reduce their prices to meet the competition which is thus forced upon them. The usual difference in price is made between Cloth with single selvage and Cloth with double selvage, the latter being 10 cents in advance of the former.

Galvanized Ware.—We give below the revised quotations of H. A. J. Helvig & Co., successors to A. H. Whiting, 27 South street, New York. In addition to the line of goods represented below, which relate principally to the Pail and Ash Can business, they make a specialty of Ship and Railroad Lanterns and Lamps. The following are their net prices of Pails, Well Buckets, &c.:

Galvanized Pails.

10-quart, per dozen	$2.50
12 " "	2.75
14 " "	3.00

Galvanized Chamber Pails.

No. 2, per dozen	$3.50
No. 3, "	3.75
No. 4, "	4.00

Galvanized Well Buckets.

No. 1, 14-quart, per dozen	$4.00
No. 2, " "	3.75

Galvanized Fire Buckets.

10-quart, per dozen	$2.50
12 " "	2.75
14 " "	3.00

Their line of Ash Cans, &c., is sold from the following lists, which are subject to a discount of 50 and 5 per cent.:

Galvanized Garbage Cans.

No. 01, 13 x 13, each	$1.75
No. 02, 13 x 15, "	2.00
No. 1, 13 x 13, "	2.00
No. 2, 13 x 15, "	2.50
No. 3, 14 x 17, "	2.50

Knickerbocker Galvanized Ash Can.

No. 1, 13 x 13, each	$3.00
No. 2, 15 x 19, "	4.00
No. 3, 15 x 20, "	4.50
No. 4, 18 x 26, "	5.50
No. 5, 20 x 26, "	6.50

Knickerbocker Ash Cans, with Wood Strips.

No. 6, 15 x 26, each	$5 25
No. 7, 18 x 26, "	6.25
No. 8, 20 x 26, "	7.25

The following are their lists for Galvanized Foot Baths and Infants' Baths, which are subject to a discount of 50 per cent.:

Infants' Baths, Galvanized.

28-inch, each	$2.00
30 " "	2.25
33 " "	2.50
36 " "	3.25
42 " "	4.25

Galvanized Foot Baths.

No. 1, 15 x 11¾, per dozen	$9.00
No 2, 17 x 13, "	10.00
No. 3, 19 x 15, "	12.00
No. 4, 21 x 16, "	14.00

Their Covers for Pails are sold as follows, subject to a discount of 70 per cent.:

Covers for Pails.

10-quart, per dozen	$2.00
12 " "	2.25
14 " "	2.50

Sandpaper.—There have been recently some negotiations with reference to a renewal of the combination on Sandpaper, but they have thus far been without result, and it is not thought likely that with the indisposition on the part of some of the manufacturers the negotiations will be successful. There is about the usual difference in the quotations of the various makers as indicated in the fact that most approved brands in large lots are quoted at discount 50 and 10, with slight concessions in special cases, while other brands, some of which are regarded as perhaps equal in quality, are quoted 10 per cent. lower, still further concessions being made on other brands which are not considered so desirable. There is an increasing demand for Ruby or Garnet Paper which is coming into prominence, though it is not yet handled by the trade to any extent.

Miscellaneous.—The All Steel *Hercules Wrench*, made by Capitol Mfg. Company, Chicago, Ill., and illustrated on page 97, is sold from the standard list at a discount of 70 per cent.

The Boss Flush T Bevel.—The Hill Bevel Company, Manchester, Conn., advise us that they have reduced the retail price of these Bevels from $1.50 to $1.15, as they propose to give the users the benefit of reduced cost.

Jockey Sticks. — The Jockey Sticks illustrated on page 927, and manufactured by the American Jockey Stick Company, Manchester, Md., are sold at $8 per dozen, with discounts to large buyers. We are advised that the goods retail at from $1.25 to $1.50 each.

Flour Bin and Sieve.—The following are the prices of Perfection Combination Flour Bin and Sieve, manufactured by Sherman, Tangenberg & Co., Chicago; terms, discount 3 per cent. for cash in ten days or 5 per cent. for cash with order:

To hold 100 pounds flour, per dozen	$27
" 50 " " "	21
" 25 " " "	17

The goods are packed one-quarter dozen in a crate. The manufacturers announce that to introduce them they offer the following discounts on first order only, for half-dozen or more, any size: Five per cent. for cash in ten days, with 10 per cent. for cash with order.

Heel Stiffeners.—The following are the list prices of Heel Stiffeners made by the Morton Heel Stiffener Company, 99 Chambers street, New York. The Stiffeners are packed with Screws, one dozen pair in a box, one gross pair in a case, assorted, or each size separate. The list, as given, is subject to a discount of 25 per cent.:

No. 1, small,	per gross pairs $15.00
No. 2, medium,	" " 15.50
No. 3, large,	" " 16.00
Nos. 2 and 3, assorted,	" " 15.75
Nos. 1, 2 and 3, assorted,	" " 15.50

Tool Holders, &c.—The following prices are quoted by H. H. & C. L. Munger, 142 Lake street, Chicago, sole agents for Colton's patent *Tool Holder* and Colton's patent *File Cleaner*, illustrated this week among Hardware novelties:

Tool Holder.

½, ⅝, ¾ inch, list	$2.00 per gross.
1, 1¼ inch, list	2.50 "
1½, 1¾, 2 inch, list	3.00 "
Assorted boxes	2.50 "

Discount, 33⅓ per cent.

File Cleaner.

No. 1, list	$24 per gross.
No. 10, list	30 "

Discount, 25 per cent.

Handling Outside Lines.

It is not an easy question for the enterprising Hardware man to decide as to how closely he will adhere to a strictly Hardware stock. Theoretically, it would be desirable if each line of business should be limited to the goods that strictly belong to it, whether it be drugs, dry goods, groceries or Hardware. It is not pleasant to see the lines between the different branches of business obliterated, and there are many disadvantages connected with the present tendency on the part of merchants to sell goods which strictly belong to other departments of trade. There is, however, a general disposition to handle any goods more or less closely related to the regular stock, provided an enlarged and profitable business can thus be done, and our readers will recall many articles which are now handled by Hardware men, which a few years ago were to be found only in the stores of other merchants. How far this should be carried is not an easy question, and will depend very much on the special circumstances of each case. As bearing upon this matter, the following communication received a few days ago may be of interest. It will be observed that the writer argues for an extension of the line of goods carried, indicating a number of articles not strictly Hardware, which in his judgment might advantageously be sold by the enterprising Hardware man:

There is a disposition on the part of some Hardware retailers to either ignore the fact that to keep abreast of the times they must carry in stock a class of goods not included in Shelf and Heavy Hardware, or there is a feeling of delicacy on their part about selling articles which some of their neighbors may be carrying with other lines of goods. The question to be decided in this latter case is whether they are doing business for money or friend-

ship. A drug store, for instance, carrying a few Lamps for the holiday trade, may have detered his next door neighbor, the Hardware merchant, for years from carrying a complete stock, from the sale of which he could have made more money in one year than he could from the sale of Nails in ten years, with much less capital invested. Lamps are but one item in a large class of goods, which are usually sold by creating a desire in the mind of a customer, and that desire is created by seeing a good assortment in stock. When a customer remarks "how nice that looks, I wish I had it," then is the time for the salesman to strike, for the iron is hot. The kinds of goods which form the most attractive, as well as the most profitable, part of the Hardware stock of a progressive retailer are those demanded by the best class of trade. While the the requirements of different sections of the country vary, a Hardware man would be safe in considering the advisability of adding any or all of the following list to his stock, if not already dealt in: Dog Collars and Furnishings, Lawn Tennis, Lamps, Sewing Machines, Baby Carriages, Tinware, Housefurnishing Goods, Gymnastic Supplies, Bicycles, Paints and Oils, Sash and Doors, Sporting Goods, Bird Cages, Refrigerators, Harness, Carriages, Agricultural Implements, Warm Air Furnaces, Hot Water and Steam Heaters, Plumbing, &c. While these goods are not all the same character as Lamps, and to which the same remarks will not apply, any or all would be legitimate additions to a Hardware stock, and are, in fact, all carried by the Hardware trade in one part or another of the United States. It would not be advisable for any one to rush headlong into buying all the articles mentioned, any more than it would for him to eat through the entire bill of fare at a large hotel, but he would be wise to add those goods for which there is a demand, or for which a demand can be created. In these days of fair stores, racquet stores, department stores and sharp competition all along the line, the retailer must be wide awake and strike out in new directions. But he must not go too fast. That he must not go too fast or too far is no reason why he should not start!

Trade Items.

THE NUBIAN IRON ENAMEL COMPANY, of Chicago, suffered the loss of their manufacturing department by fire on the 6th inst. This has caused a serious interruption to their business, as an unprecedentedly heavy trade had caught them short of stock and long on orders. Fortunately they had a short time previously purchased a site at Cragin, Ill., a slight distance from Chicago, to which they intended to remove in the spring, and their arrangements were such as to require but a brief time to prepare the new factory. The fire has simply caused them to anticipate the fixed time for their removal, and they are now about ready to resume business on a larger scale than ever.

THE STANDARD FIBER WARE COMPANY, of Mankato, Minn., are distributing artistic folders to their customers by way of reminding them that they will need some of the company's goods for the holiday trade. These folders have on them flowers and insects beautifully lithographed in colors, and further contain price-lists, cuts of the leading articles manufactured by the company and a list of reasons why people should buy Standard Fiber Ware. The decorated cards naturally call attention to the decorated goods manufactured by the company, which are especially suited to the holiday trade. They have just secured the services of a decorator who is a real artist, and whose designs may therefore be expected to surpass very decidedly the conventional work on goods of this class. The growth of the company's business has been so rapid that they now have six decorators at work, as against two a year ago.

A. J. JORDAN, St. Louis and Sheffield, manufacturer of "AAA1" Cutlery, has just received from his Sheffield factory a large invoice of holiday goods, comprising a very extensive assortment of case goods for men and women. These goods are described as well made, and contain Cutlery manufactured by A. J. Jordan, bearing his name. He informs us his assortment this year of these goods is as complete as it is possible to have it, and he antici pates a large sale of these goods in the next six weeks.

WRIGHT MACHINE COMPANY, Worcester, Mass., are now supplying their Wright-Pond Quick Calipers and Dividers direct to the trade, instead of through agents, as heretofore. They issue a circular illustrating the construction of these goods and especially the construction of the adjusting nut, which is one solid piece, and under pressure from the spring engages the screw and when not under pressure slides freely over it.

SALEM LEAD COMPANY, Boston, Mass., who are New England agents for Eckstein White Lead Company and John T. Lewis & Bros. Company have removed to 234 and 236 Congress street, corner of Purchase street. This increase in their capacity is referred to as enabling them to carry in their store a complete stock of Pure White Lead, dry and in oil, Red Lead, Litharge, Lead Pipe and Sheet Lead.

THE WILL OF THE LATE Franklin F. Spencer, of Chicago, was admitted to probate on the 12th inst. Letters testamentary were issued to the sons-in-law, Augustus N. Eddy and Arthur J. Caton, on their giving an individual bond in $1,500,000. The estate consists of stock in Hibbard, Spencer, Bartlett & Co., in the Continental National Bank of Chicago, the Northern Trust Company, and realty on North Clark street and Michigan avenue.

THE TRADE WILL OBSERVE the advertisement of Montgomery & Co., 105 Fulton street, New York, in which an illustration is given of their improved Belt Punches, the advantages of which are referred to. They also call attention to the fact that they are jobbing everything in the tool line and are offering many specialties

THE FRIENDS of W. R. Belknap, of the firm of W. B. Belknap & Co., Louisville, Ky., will learn with deep regret of the death of Mrs. Belknap, November 9. She was a daughter of the late Professor Silliman, of Yale College.

THE CHICAGO AXE COMPANY, recently organized under the laws of Illinois, with office at 304 Pullman Building, Chicago, have leased large buildings in Hammond, Ind., and are energetically at work putting in blast furnaces and other necessary appliances for the manufacture of Axes. The company have a paid up capital of $300,000 and the following board of directors: Robert Kenaday, Chicago, president; J. S. Gibbons, Chicago, vice-president; W. W. Young, Chicago, treasurer; W. H. Teetzel, Hammond, secretary, and H. F. Meikel, Hammond; C. L. Pullman, Chicago, and W. C. Pullman, Chicago. Messrs. Teetzel and Meikel were formerly located in Louisville, where they had experience in Axe making. The company have secured an option to purchase the grounds and buildings at the expiration of their present lease, which is for five years. They express confidence in the success of their undertaking, and regard the present condition of the Axe business as favorable to the establishment of their enterprise.

Price-Lists, &c.

THE ILLINOIS WIRE NAIL COMPANY, Chicago, Ill., in connection with the manufacture of a complete line of Smooth and Barbed Wire Nails and Brads, carry a large stock of Wheeling Steel Cut Nails, enabling them to make prompt shipments.

P. Gerlach & Co., Cleveland, Ohio, issue circulars illustrating their Alligator Chisel Bit Saws, Champion Stave Machines, Champion Heading and Shingle Machines and Bolt and Stave Equalizers. They manufacture other Saws and Saw Machinery, also Ice Harvesting Tools.

Joseph Lay & Co., Ridgeville, Ind., manufacturers of Brooms and Brushes, Rattan, Bass and Steel Wire Push Brooms, Molders' and Casting Brushes and Steel Wire Brooms and Brushes of all kinds, issue a price-list of these goods. Special estimates are furnished on Mill Brushes and Pipe Brushes.

Merrie, Verhage & Co., 11 and 13 West Seventh street, Cincinnati, Ohio, dealers in Plumbers' Supplies, send us their "Plumbers' Guide, November, 1890." This includes a large range of illustrations and price-lists of Plumbers' Goods, Plumbers' Tools, &c.

Kellogg & Van Houten, Newark, N. J., manufacturers of Lead Pipe, also carry a stock of goods for plumbers, gas and steam fitters, machinists, and a line of factory supplies. Their trade extends throughout New Jersey and into New York and Pennsylvania.

The Henney Buggy Company, Freeport, Ill., manufacturers of Cabriolets, Surreys, Phaetons, Park Wagons, Spring Wagons, Road Wagons, Buggies, &c., issue an illustrated catalogue of these goods, together with a net wholesale price-list of the same.

J. D. Johnson & Co., Philadelphia, Pa., manufacturers of Plumbers' Iron Castings, have recently moved into their new building, and in connection with their manufactures carry a full line of Plumbers' Supplies in stock.

Edward L. Rose & Co., Wheeling, W. Va., issue a folder showing some of the Wheels which they are handling, including the Victor Safeties, Victor Light Roadster, &c., with Wheel Supplies.

The Horton Mfg. Company, Fort Wayne, Ind., manufacturers of the Western Washer, issue a pamphlet relating to the benefits arising from the use of the Western Washer, and also containing suggestions in regard to washing different fabrics and directions for removing spots from clothing, &c.

Job T. Pugh, Philadelphia, Pa., and 55 South Canal street, Chicago, issues a circular in which attention is called to Black Twist Bits, for carriage and wagon use, both for machine and hand boring. It is stated that these goods are made from the finest English cast steel, and have been in the market for over a century.

The Perkins Windmill and Axe Company, Mushawaka, Ind., send catalogue and price-list and advertising matter relating to their Windmills. In this connection they state that they are prepared to furnish all the modern attachments for the most difficult or complicated orders to the best advantage.

The Wyckoff Pipe Company, Williamsport, Pa., issue circulars and price-list of their Patent Wooden Tubing and Creosoted Casing for incasing telegraph, telephone and electric light wires under-

ground. These are made all sizes, from 1-inch to 8-inch bore, and in sections about 8 feet long. They state that dead oil of coal tar, when forced into the wood under high pressure, is the only known product that will preserve wood under all circumstances, provided the timber is properly treated before the creosote oil is forced into it. They also manufacture all kinds of Wooden Water Pipe.

R. Wallace & Sons, Wallingford, Conn., New York and Chicago, manufacturers of Sterling Silver Ware, Silver Plated Ware, Fine Cutlery, Novelties in Silver Plated Goods, &c., issue an 1890 and 1891 catalogue of 150 pages with illustrations and prices of goods manufactured by them. In this catalogue will be found many new articles, as well as those which have appeared in their former issues, and it is complete up to date. A division into departments of Nickel Silver Ware, Sterling Silver Ware and Chased Goods is a feature that will be appreciated by the trade. A smaller catalogue and illustrated price-list, relating to Silver Plated Novelties, is issued by the same firm.

The Kentucky Wagon Mfg. Company, Louisville, Ky., issue catalogues descriptive and illustrating the Tennessee, Old Hickory Wagons and other Wagons, also Cartwright Spring Wagons, both heavy and light. These goods are now all under the control of the above firm, who have a branch house at Nashville, Tenn.

Grant McNeil, Akron, Ohio, issues an illustrated circular relating to McNeil's Balanced Charging Barrows, Rolling Mill and Steel Barrows. The Balanced Charging Barrow is for use at blast furnaces, and many advantages are claimed for it over the ordinary Barrow used for this work, among which it is mentioned that the box is supported independently of the frame, and so arranged as to prevent it falling into the hopper.

Lee-Clarke-Andreesen Hardware Company, Omaha, Neb., issue an illustrated price current of winter goods. The design on the cover is noticeable as not only being somewhat out of the usual line, but as being artistic and effective. The front cover shows two winter pastimes, one of skating and the other sleighing, with appropriate surroundings. The back cover has an illustration of a fancy waiter. The current is devoted to illustrations of Silver Plated Hollow Ware, Flat Ware, Cutlery, Lanterns, Lamps, Granite Ware, Hollow Ware, Axes, Saws, Sleds, Skates, &c.

The Trump Bros. Machine Company, Wilmington, Del., manufacturers of Light Machinery, Finished Hexagon Nuts, Stud, Coupling and Top Bolts, issue circulars relating to these goods. Illustrations show the Fleetwood and Dexter Scroll Saws, Trump Chuck and Center Grinder.

The catalogue No. 17 issued by the N. O. Nelson Mfg. Company, St. Louis, Mo., is a substantial volume bound in cloth boards and containing over 500 pages. This book shows a most complete line of plumbing goods and supplies for steamfitters and gasfitters. In an address to the trade they lay special stress on the fact that the increased variety of goods is of their own make, and also state that in the present catalogue obsolete articles are omitted. An alphabetical index opens the volume. Without any further introduction the reader comes upon the illustrations with price-lists of goods. The first are bibbs, stops and cocks of all sorts, chain stays, waste cocks, ferrules, chains, valves, nozzles, couplings, &c. Then comes a line of lawn sprinklers, hose reels, steam packing, pipe couplings, glue brushes, &c., followed by a number of pages devoted to soil pipe, fittings, greenhouse fittings and traps. Kitchen sinks occupy several pages, and are shown in large variety. These are followed by sink fixtures; then come wash stands, hydrants, fire backs and a full line of bathtubs. Lavatories, sinks, closets and basins occupy a number of pages of the volume, closets alone, with their fittings and attachments, taking up over 60 pages. Miscellaneous plumbing goods are then presented, including all sorts of tools and also large machine tools. Attention is next drawn to fittings for wrought iron pipe also brass fittings and valves, the latter being shown in great variety. Steam engine supplies are also presented, and likewise several forms of heating coils. The volume closes with pumps, forges, hydraulic rams, &c. Altogether it is a most complete publication, and the plumbing trade will especially appreciate its fullness. Accompanying this catalogue is a supplement devoted to decorated basins of their own design, some 24 different colored plates being presented, showing a variety of styles, decorations and finishes. Opposite the plates are tables of particulars, with prices of the goods. Another circular issued by the same concern relates to Syphonia specialties, &c., which they manufacture. The six pages are devoted to illustrations of different forms of the Syphonia closet, accompanying which are brief descriptive particulars and price-list. The MacFarland Automatic Expansion Syphonia Closet is also illustrated and described. The remainder of the catalogue is devoted to basins, slop sinks and a similar line of goods.

H. F. Watson, Erie, Pa., and 136 to 138 Washington street, Chicago, Ill., issues a list of his productions. These consist of Building and Lining Papers, Water Proof Sheathings, Asbestos Fire Proof Papers, Asbestos Steam Packings, Steam Pipe and Boiler Coverings and Prepared Roofing Materials.

The J. & E. Stevens Company, Cromwell, Conn., manufacturers of Iron Toys, &c., issue an illustrated catalogue of these goods. They desire to call attention to the fact that new inventions have been added to their list of articles each year, and that the new goods offered this season have many desirable features.

W. F. Valentine & Son, Albany, N. Y., manufacturers of Valentine's Patent Felt Weather Strip, issue a circular price-list of these goods. Some of the points of excellence of this Weather Strip are mentioned as being that the Felt does not become hard; that it makes a tight joint beneath the Strip; that it will last for years, if properly applied, and that it is neatly made of first quality lumber.

The W. C. Garrison Mfg. Company, 75 Warren street, New York, issue an illustrated catalogue and price-list, No. 14, relating to Cans and Tanks. Attention is directed to their Universal Family Oil and Gasoline Can, which is made with a pump entirely removable from the Can, if desired or in case of obstruction.

The Dairy Implement Company, Bellows Falls, Vt., issue an illustrated price-list of their Champion Creamery. The exterior view and interior construction are shown and a full description of the working of the Creamery given. The Vermont Farm Machinery Company, also located at Bellows Falls, Vt., issue catalogues relating to Evaporators for maple sap; Pneumatic Fruit Driers, Cheese Apparatus and Special Dairy Creamery Supplies.

John E. Smith & Sons, Buffalo, N. Y., manufacturers of National and Buffalo Double Crank Meat Choppers, Meat Mixers, Stuffers, Lard Presses, &c., issue circulars and illustrated price-lists of these goods. Attention is called to an improvement put on their Choppers in the shape of a Mixer, which is stated to reduce time and labor in chopping meat.

The Buffalo Register Works, Buffalo, N. Y., manufacturers of Warm Air Registers, Ventilators and Refrigerator Trimmings, issue catalogues of these goods. The catalogue of Refrigerator Trimmings is referred to as containing but a part of the Trimmings made by them, the greater number having been made for special work.

W. & E. T. Fitch, New Haven, Conn., issue an illustrated catalogue and price-list of Fine Saddlery Hardware, Curry Combs, Harness Snaps, Breast Strap Rollers, Buckle Guards and other patented specialties. It is handsomely printed on paper of exceptionally fine quality.

The Syracuse Twist Drill Company, Syracuse, N. Y., issue a price-list of their goods. Besides illustrations and lists of Bits, they show Adjustable Mallcable Iron Handles for use where a Brace is inconvenient, Balz Patent Tool Holder, Clark's Patent Double Cut Countersink, Balz Patent Drill Chuck, improved, and King's Patent Screw Driver Bit.

Chas. F. Baker & Co., 50 Lincoln street, Boston, Mass., issue a circular and price-list of their Patent Iron Wire Clinching Nails. They claim these Nails clinch and are strong, and are particularly adapted for repairing shoes. It is stated that the points are oval or awl shaped and are driven and clinched without the aid of an awl.

The Blatchford Cartridge Works, Chicago, Ill., issue a price-list of Blatchford Cartridges for Breech Loading Shot Guns. Combinations of loads are offered in large variety adapted to the various kinds of game. Orders for special loads, however, will be filled when ordered.

The Empire Wringer Company, Auburn, N. Y., issue a catalogue and price-list of their Wringers, Clothes Drying Bars, Folding Wash Benches, Cot Beds, Hammock Standards, &c. Attention is directed to their Empire Wringer, which has their well known purchase gear. The power is applied to the large gear wheels on the rolls by a gear wheel of half the size on the crank.

The Wiard Plow Company, Batavia, N. Y., issue circulars and price-lists relating to Plows, Automatic Hand Corn Planters and Sulky Horse Rakes. They advise us that for another season they will bring out one new Swivel and two new Flatland Plows, which will have some new improvements in construction. Their Rake will also have a new device for adjusting the hight of the teeth for different conditions of soil and grass. To provide for the increasing demand for their Rakes, they expect to double this year's output.

The Anthony Wayne Mfg. Company, Fort Wayne, Ind., issue circulars and price-list of their Improved Anthony Wayne Washers and Ironing Boards. They state that Washing Machines are a standard article of trade with most of the Hardware jobbers, and in this connection refer to the fact that the actual sales of their new Improved Anthony Wringer in three years have been 22,015.

A. H. Reid, Thirtieth and Market streets, Philadelphia, Pa., manufacturer of and dealer in Creamery Supplies, sends us an illustrated catalogue and price-list. This line of goods includes Creameries, Cream Vats, Milk Cans, Churns, Butter Workers, Butter Printers, Butter Boxes, Scales, Separators, Engines, Boilers, Pumps, &c. Among the illustrations is a plan of a model Creamery equipped, ready for running, as built in a Pennsyl-

vania town, and alluded to as containing many novel features and inventions. Attention is directed to their Churns, Butter Workers, Printers, Molds, and particularly to Reid's Lightning Brace.

J. Fred. Wilson, Worcester, Mass., manufacturer of Nuts and Washers for all purposes, Metal Punching, Die Making, &c., sends us price-lists of Plate Washers, Cold Punched, Chamfered, Trimmed and Drilled Nuts, subject to the regular trade discounts; also net prices for Tapping Square and Hexagon Nuts. These lists are on separate sheets, printed on but one side, are convenient for reference and for pasting in catalogues.

The Minnesota Thresher Mfg. Company, Stillwater, Minn., issue an illustrated catalogue descriptive of the machines manufactured by them, and an annual price-list for 1890. The catalogue relates to Traction Engines, Boilers, Separators, Stackers, Horse-Powers, Saw Mills, Lifting Jacks, &c. Illustrations are also given, showing in detail different parts of the various machines.

The Union Hardware Company, Torrington, Conn., and 95 Chambers street, manufacturers of Dog Collars, Gun Implements, Wood and Leather Goods, Tackle Blocks, Skates, &c, issue a catalogue relating to these goods. Separate departments are devoted to Dog Collars, Gun Implements, Wood Work and Skates, making the arrangement of the catalogue convenient. They are also Wood Turners, and Electro-platers in Gold, Silver, Nickel and Brass. Particular attention is directed to their Ice and Roller Skates.

In a leaflet issued by G. & M. Nolin, Skowhegan, Maine, their Solid Steel Hay Knife is illustrated and its dimensions given. The blade of this Knife is described as made from fine sheet steel worked in water and hardened in oil. A slight groove along the back gives stiffness, while its extreme thinness is referred to as allowing it to be easily forced through closely packed material.

Walter W. Woodruff & Sons, Mount Carmel, Conn., manufacturers of Coach and Carriage Hardware, Fine Mountings, &c., send circulars of Eagle Screw Clamps and Mount Carmel Ox Shoes. The circular refers to the favor with which for more than 12 years these Shoes have been received. The manufacturers are prepared to make to order any special shape or size of Shoe that may be required.

The Central City Bolt Company, Syracuse, N. Y., issue a list of common and full square or Philadelphia Carriage Bolts as manufactured by them. They also manufacture the Barry Parlor Door Hanger, of which they give an illustration. They print a separate circular relating to the Hanger.

Milbur B. Hall, Meriden, Conn., manufacturer of Napkin Rings, Individual Peppers and Salts, Tops for Mustard, Pepper and Salt Bottles, &c., issues an illustrated catalogue for 1890. These goods are shown in a variety of patterns, together with Butter Plates, Toothpick Holders, Tea Strainers, Old Silver Mirrors, Pin or Ash Trays, Old Silver Thermometers, &c.

Thornburgh & Glessner, Chicago, Ill., manufacturers of Mill and Elevator Supplies, send us an illustrated price-list of these goods. These consist of Elevator Buckets, Elevator Bolts, Belt Punches, Conveyors, Elevator Boots, Spouts, Belting, Belt Fasteners, Sprocket Wheels, Pulleys, &c. They state that of the goods contained in this catalogue they are either sole manufacturers or manufacturers' agents, and that they have in stock at all times a full line of these goods, and can insure prompt shipment of orders.

WHEN.*

BY D. T. MALLETT.

(*Continued from page* 868.)

When you think that a rival has sprung into prominence without effort, examine his methods.

When your pleasure and taste are in happy relation to your business, wind and current are in your favor.

When goods have remained in a certain position for some time, move them; a change of this kind often improves trade and is a personal pleasure.

When an eye first sees your advertisement it may appeal to the eye only; it is only in repeated efforts that advertising reaches its object—the customer.

When your customer insists that steel is iron, or yellow more fashionable than blue, it is more important for you to effect the sale than to convince him of his error.

When time is saved money is accumulated. Remember that system is the mark of a well balanced mind.

When business transactions are recorded in a systematic manner the result is "bookkeeping."

When you select styles or grades of goods for stock look through the eye and pocket of your customers.

When you take a personal interest in an employee you are consulting your own interests.

When a year's business is completed ascertain the proportion of gross profits to sales, the amount of expenses to gross profits and to the net profit, the capital employed and your personal expenses, and be guided by the result during the following year.

When goods are marked in cipher do not permit them, when sold, to leave the store without first erasing the mark.

When a line of goods are placed in a prominent position, with the prices plainly attached to them, they often become their own salesman.

When you are selling an article, remember the purchaser regards the price while he is buying, but the quality when in his possession.

When you find an article (not a staple) is sold by a competitor regularly for less than a legitimate profit, drop the article from your stock.

When you have made an unintentional business error frankly confess and explain it at once; promptness in such matters is one of the strongest levers of confidence.

When you wish to make a "leader" of an article select something the sale of which you can wholly or partially control.

When deciding upon the proper profit to be placed upon an article be guided more by your judgment than by a system of per cent.

When you discover an apparent shortage in goods received, examine them twice before making a claim upon the shipper.

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When several grades are offered in an article which you intend to purchase, if you do not wish to carry all grades, select the cheapest and the middle grades.

When your attention is called to an article which you can carry without extra store expense, do not allow the fact of its being somewhat "out of your line" to affect your decision.

When you write a letter to which you wish a prompt answer, inclose a stamped and addressed envelope.

When you seek a partner, select one whose ability is of a nature that will cover the defects of your own talents. Dissimilar characteristics united to a common end is a strong combination.

When there is a promptness of action attained by a complete conclusion of the mind, the enterprises of a business are generally successful.

When you have a time for certain duties do them at that time. System is the endless ring which unites the chain of circumstances.

When you have thoroughly learned to mind your own business, you can reasonably expect your business to mind you.

When your customer evidently thoroughly understands the value and use of the article he is examining, it is a proper time for you to obtain any information of which you may be deficient.

When you sell an article for less than a legitimate profit, from a too eager desire to effect a sale, you will feel the after effects of competition more keenly.

When you have been in business some time avoid getting into a rut. Ruts are blind footsteps which often lead one in a circle. Strike out of the beaten path.

When you use your spare cash to discount your unmatured bills, you are reaping a double dividend from your capital.

When your mind hesitates your hand will falter.

When you open one hand to secure a new customer, be sure not to allow the old customer to escape from the other hand. Better a few and tried customers than many and uncertain prospective ones.

When business begins to dwarf your soul, remember that work is the means, not the aim, of existence.

When a particular business elevates its owner, it is invariably because he first ennobled it with energy, honesty and ability.

When a business is selected solely for the reason that the occupation is agreeable, it will be found that the commercial result will be equally as narrow as the view taken of it.

When you hesitate between a right and a wrong action you are tampering with your conscience.

When you would advertise your competitors, speak disparagingly of their business and methods.

When you have a place for everything keep everything in its place. Order is the basis of business, as of nature.

Exports.

PER BARK MARIE BECKER, OCTOBER 9, 1890, FOR NELSON, NEW ZEALAND.

By H. W. Peabody & Co.—50 cases Tools.

By McLean Bros. & Rigg.—½ dozen Wringers, 1½ dozen Meat Choppers, 1000 pounds Tacks, 14 dozen Harness Snaps, 4 dozen Wire Broilers, 1 dozen Wringers, 1 case Mower Fittings, 40 dozen Locks, &c.

By R. W. Forbes & Son.—11,200 pounds Barb Wire, 20 dozen Shovels, 2 cases Cultivators, 6 cases Horse Nails, 20 dozen Axes, 98 dozen Axe Handles, 1 cask Hardware, 2 cases Blacksmiths' Drills, 7 cases Household Utensils, 6 cases Hardware.

PER SHIP PETER STUART, OCTOBER 11, 1890, FOR SIDNEY, AUSTRALIA.

By F. B. Wheeler & Co.—7 dozen Wringers, 100 gross Crayons, 2½ dozen Pumps, 50 cases Crayons.

By R. W. Forbes & Son.—12 packages Agricultural Machinery, 1 Mower, 2 dozen Hammers, 1 case Wrenches.

By R. W. Cameron & Co.—4 cases Rubber Goods, 1 box Hardware, 4 dozen Hatchets, 10 dozen Hoes, 1 dozen Picks, 5 dozen Spades, 225 pounds Shears.

By A. S. Lascelles & Co.—1 gross Hammers, 2 gross Traps, 2 gross Locks, 2½ gross Cutlery, 3 dozen Stoves, 1 gross Wrenches, 2 gross Tills, 15 packages Hardware, 1 gross Egg Beaters, 3½ dozen Wringers, 3 dozen Hardware, 20 dozen Axes, 6 dozen Vises, 9 dozen Hardware, 2 gross Razor Strops.

By McLean Bros. & Rigg.—72 dozen Wire Broilers, 18 dozen Mattocks, 10 dozen Drills, 3 cases Drilling Machinery, 36 Stoves, 2 packages Silver Ware, 7 cases Granite Ware, 1 gross Animal Traps, 17 cases Carriage Hardware, 72 dozen Mouse Traps, 1 case Plated Ware, 12 dozen Meat Choppers, 50 sets Axles, ½ dozen Coffee Mills, 2 dozen Lemon Squeezers, 8 dozen Pruning Shears, 18 dozen Hatchets, 20 dozen Cow Bells, 16 dozen Axes, 151 sets Axles, 3 dozen Store Trucks, 20 dozen Picks, 28 cases Agricultural Machinery, 18 cases Plows.

By H. W. Peabody & Co.—2 cases Edge Tools, 7 crates Churns, 11 cases Hardware, 3 packages Scrapers, 2 cases Oil Stone, 78 cases Lampware, 1 case Plated Ware, 18 packages Corn Shellers, 1 case Sandpaper, 16 cases Hardware, 2 dozen Wringers, 6 Lampware, 2 cases Tools, 29 packages Stoves, 4 cases Hardware, 6 dozen Sifters, 37 sets Axles, 5 cases Fire Arms, 16,500 Cartridges, 1 case Edge Tools, 3 cases Meat Choppers, 1 case Brushes, 1 case Lampware, 1 case Edge Tools, 4 cases Hardware, 1 cask Gutta Percha, 10 Rifles, 10 Reloading Tools, 1 case Step Ladders.

PER BARK LEOPOLDO, OCTOBER 14, 1890, FOR CAPE TOWN, SOUTH AFRICA.

By W. K. Freeman.—14,631 packages Windmills.

By M. Berliner—30 packages Windmill Machinery.

By H. W. Peabody & Co.—77 cases Plows.

By R. W. Forbes & Son.—2 dozen Tools, 1 dozen Axes.

By W. B. Fox & Bro.—9 cases Meat Stuffers, 375 pounds Woodworking Machinery.

By Strong & Trowbridge.—8 dozen Traps, 9 kegs Nails, 14 dozen Hardware.

By Arkell & Douglas—3 dozen Axes, 18 Meat Cutters, 1 case Hammers, 3 dozen Household Hardware, 12 dozen Brackets, 1½ dozen Braces, 5000 pounds Wire, 2 dozen Forks, 8 dozen Traps, 10 dozen Axes, 2 dozen Stuffers, 2½ dozen Choppers, 12 Ladders, 3 dozen Hammers.

By W. H. Crossman & Bro.—10 dozen Axes, 4109 pounds Sisal Rope, 3 dozen Cordage, 6 Scales, 3 cases Hardware, 2 cases Carriage Hardware.

PER BRIG BESSIE MAY, OCTOBER 14, 1890, FOR PORT ELIZABETH, SOUTH AFRICA.

By Arkell & Douglas.—104 Plows, 10 Store Trucks, 5 Hand Carts, 38 Churns, 15 Corn Shellers, 48 dozen Hardware, 110 dozen Axes and Hatchets, 2 cases Tacks, 12 Scales, 24 Step Ladders, 10,000 Cartridges, 50 kegs Nails, 50 dozen Hatchets, 40,000 pounds Wire, 310 Plows, 10 Shellers, 36 dozen Hardware, 277 dozen Axes and Hatchets, 6 dozen Saws, 20 Scales, 6 cases Meat Cutters, 5 Hand Carts, 6 dozen Hammers, 25 coils Rope, 75,000 Cartridges, 2000 pounds Nails.

PER SHIP PETER STUART, OCTOBER 11, 1890, FOR SYDNEY, AUSTRALIA.

(Supplementary.)

By Combs, Crosby & Eddy.—24 dozen Edge Tools, 1 dozen Wringers, 23 dozen Agricultural Implements, 22 dozen Hardware, 2 dozen Hay Forks, 7 dozen Rubber Goods.

By Sargent & Co.—6 cases Hardware.

By W. & B. Douglas.—5 boxes and 6 packages Pumps.

By Morris, Strouse & Co.—37 dozen Axes, 24 dozen Hoes, 10 dozen Hoe Handles.

By Winchester Repeating Arms Co.—24 Guns, 50,000 Primers.

By J. L. Mott Iron Works.—51 packages Stoves.

By Russell & Erwin Mfg. Co.—9 dozen Forks, 3 dozen Hooks.

By A. Field & Sons.—3840 pounds Iron Drills.

By Ullathouse & Co.—1796 pounds Iron Nails, 152 pounds Flint Paper.

By R. H. Dana & Co.—1 case Hoes, 1 case Hardware.

By Russell & Erwin Mfg. Co.—11 packages Hardware.

PER BARK DORODEA M., OCTOBER 16, 1890, FOR PORT NATAL, SOUTH AFRICA.

By Arkell & Douglas.—2⅔ dozen Saws, 3 dozen Meat Choppers, 237,200 pounds Barb Wire, 357 dozen Axes and Hatchets, 32 sets Axles, 64 dozen Edge Tools, 18 Lamps, 1100 pounds Nails, 5 dozen Axes, 3 Scales, 12 Pumps, 300 pounds Nails, 2 dozen Washers, 16,350 pounds Sash Weights, 443 pounds Sash Cord, 7½ dozen Lamps, 79 dozen Hardware.

PER BARK MIKADO, OCTOBER 21, 1890, FOR DUNEDIN, NEW ZEALAND.

By A. S. Lascelles & Co—1960 pounds Nails.

By Arkell & Douglas—3 dozen Pumps, 18 dozen Axes.

By R. W. Cameron & Co.—5 dozen Meat Choppers, 2 dozen Wringers.

By R. W. Forbes & Son.—1 case Carriage Hardware.

By Mailler & Quereau.—1 case Reaper parts.

By H. W. Peabody & Co.—8 cases Hardware, 1 dozen Wringers, 2 cases Axles, 1 case Hardware, 1 case Hardware, 1½ dozen Wringers, 20 cases Plows, 1 box Lamp Ware, 1 case Plated Ware, 1 case Hammers.

By W. H. Crossman & Bro.—8 Churns.

FOR LYTTLETON.

By Arkell & Douglas.—1 Gun, 1½ dozen Pumps, 16 dozen Wrenches, 1 dozen Wringers.

By R. W. Cameron & Co.—6 dozen Snaths, 3 dozen Saws, 20 cases Brushes, ½ dozen Braces, 8 dozen Tools.

By Ilsley, Doubleday & Co.—9 dozen Brushes.

By R. W. Forbes & Son.—3 packages Carriage Hardware, 27 dozen Axes, 66 boxes Horse Nails, 6 dozen Glue, 24 packages Hardware.

By Mailler & Quereau.—1 box Knives, 17 packages Lamp Goods.

By Coombs, Crosby & Eddy.—31 Pumps, 1 dozen Wringers, 3 Wire Mats, 2 dozen Picks, 6 dozen Cutlery.

By A. Field & Co.—7 Agricultural Tools, 6 sets Axles.

By H. W. Peabody & Co—2 dozen Brushes, 5 cases Hardware, 35 cases Skewers, 4¼ dozen Wringers, 600 pounds Nails, 4 packages Lampware, 15 cases Tools, ¾ gross Churns, 1000 pounds Nails, 30 Churns, 1 case Flint Paper, 9 cases Nails, 18 Wringers, 27 packages Hardware, 6 dozen Thermometers, 400 pounds Nails, 1 dozen Wringers, ½ dozen Razors, 1 case Revolvers, 3 Boring Machines, 10 cases Meat Choppers, 1000 pounds Nails, 12 cases Agricultural Machinery, 1 case Agateware, 1 case Rivets, 1 case Nails, 12 packages Hardware, 2 dozen Brushes, 3 packages Lampware, 1 case Sash Cord, 1 case Picks, 1 case Mouse Traps, 12 Wringers, 29 cases Tools.

PER BARK ELISE, OCTOBER 30, 1890, FOR SYDNEY, AUSTRALIA,

By Manhattan Brass Company.—3 cases Lanterns and Lamps.

By Hartley & Graham.—1 case Fire Arms, 1 case Hardware.

By Bradley & Hubbard Mfg. Company.—2 casks Lamp Goods.

By Meriden Britannia Company.—4 packages Plated Ware.

By Collins & Co.—85 dozen Edge Tools.

By Welsh & Lea.—6 cases Iron Bolts.

By Edward Miller & Co.—22 packages Lamp Goods.

By Strong & Trowbridge.—8 dozen Nuts and Bolts.

By Rochester Lamp Company.—22 packages Lamp Goods.

By H. W. Peabody & Co.—1 case Axles, 2 cases Hardware.

By W. H. Crossman & Bro.—13 dozen Cages, 560 pounds Stone, 9 dozen Braces, 6 dozen Rifles, 3 dozen Braces, 8 cases, 6 boxes and 4 packages Hardware.

By Coombs, Crosby & Eddy.—36 Lawn Mowers, 3 dozen Pumps, 1½ dozen Grindstones, 4 Boring Machines, 1 dozen Mangles, 24 dozen hammers, 59 Stoves, 20 dozen Stove Parts, 44 dozen Saws, 61½ dozen Hardware, 1 dozen Hay Knives, 33 dozen Edge Tools, 52 dozen Hardware, 8 dozen Snaths, 4 dozen Scythes.

By Ilsley, Doubleday & Co.—3 dozen Tills, 9 dozen Horse Brushes, 15 dozen Brushes.

By V. Basanta.—30 dozen Axes, 30½ dozen Lamp Goods, 24 dozen Hammers, 27 dozen Hoes, 15 dozen Wrenches, 15 dozen Plumbs and Levels, 36 dozen Springs, 4 dozen Choppers, 1½ dozen Wringers, 1 gross Brushes, 30 dozen Cutlery, 6 dozen Braces, 12 Stoves, 5 dozen Churns, 2 dozen Lamp Goods, 40 boxes Tacks, 280 pounds Washita Stone, 2 gross Traps, 6 gross Coat and Hat Hooks, 207½ dozen Lamp Goods, 146 pounds Washita Stone, 14 dozen Locks, 2400 pounds Nails.

By Arkell & Douglas.—½ dozen Churns, 19 dozen Axes, 650 pounds Rakes, 700 pounds Scythe Handles, 27 cases Axles, 2395 pounds Lamp Ware, 2 dozen Wringers, 3 cases Axles, 6 cases Axles, 437 pounds Glue, 16 dozen Saws, 1 dozen Ladders, 1 dozen Cork Pullers, 6 dozen Axes, 2 dozen Churns, 9 Stoves, 12 dozen Saws, 18 dozen Axles, 12 dozen Rakes, 12 dozen Mop Handles, 4 dozen Saws, 2 dozen Axes, 3 dozen Scales, 15 dozen Axes, 6 dozen Saws, 25 dozen Axes, 3 Forges, 18 dozen Lamps, 7200 pounds Files, 1 dozen Miter Boxes, 2200 pounds Bolts, 3 dozen Locks, 40 Churns, 1 dozen Money Drawers, 2 dozen Wringers, 11 dozen Saw Blades, 1 case Tire Shrinkers, 1 gross Anti-Rattlers, 48 pounds Tacks, 17,400 Bolts, ½ dozen Bolt Cutters, 9 dozen Brushes.

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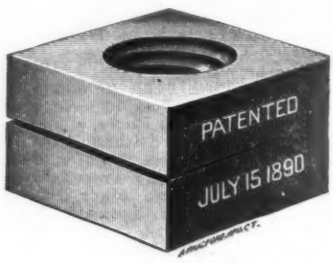
Patent Self Locking Nut.

The Jamestown Patent Self Locking Nut Company, Jamestown, N. Y., are introducing a self locking nut, as illustrated herewith. It is made of steel, cold pressed. The process of manufacture is described as follows: The steel bar is first doubled or folded together, forming

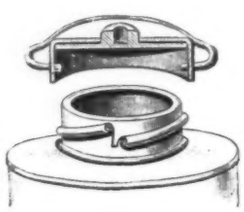


Patent Self Locking Nut.

a cold sheet, then punched and the thread cut; after this the cold sheet is opened, thus throwing a part of the thread at a different angle from the back or solid side. This, it is stated, gives a grip both ways, will not strip the thread, and can be taken off and put on a reasonable number of times. The point is made that it requires over 1000 pounds to force the spring together, consequently the nut is gripping when on the bolt over 1000 pounds, thus holding it in the position required. These nuts are referred to as being suitable for railroad track bolts, and for use by locomotive and car builders, agricultural implement manufacturers, in places where there is liability of nuts becoming loose from any cause. Its efficiency and comparative inexpensiveness are points emphasized in regard to it.

Improved Liquid Glue Can.

The Russia Cement Company, Gloucester, Mass., manufacturers of LePage's Liquid Fish Glues, are using an improved can top for their LePage's glue, an illustration of which is herewith given in section. The cap is held in place by two short lugs, formed by the ends of the wire grip extending through the sides of the



A Novel Can Screw.

cap, and engaging with a cam thread on the neck of the can. A compressible disk between the cap and the lip of the can enables the package to be closed air tight by only a quarter turn of the cap. The object of the improvement is to provide an air tight cap for a liquid glue can, which may be easily removed and quickly replaced without danger of its becoming stuck on by the surplus glue which is liable to get smeared around the neck of the can while in use. It is stated that this is accomplished by making the cap larger than the neck of the can, so that the sides of the cap do not touch the neck at all. The surface of contact between the top of the cap and the lip of the can is reduced to the smallest possible amount. The cans on which this top is used are of all sizes, from half-gills to gallons.

Olmsted's Improved Upright Drill.

L. H. Olmsted, Hasbrouck Heights, N. J., is putting on the market an upright drill, as illustrated in Fig. 1. The feed lever is attached directly to the upper end of the spindle by means of an adjustable double ball joint, Fig 2, so that when the drill is being pressed into the work the thrust is directly against the center of the upper end of the spindle. It is stated that this arrangement produces the least possible friction, and allows the spindle to run light and free, a slight pressure of the hand on the short lever being sufficient to feed the drill. The two idle pulleys are adjustable to suit the belt for either speed of the spindle pulley. The ball is hooked on the lever, and counterbalances the weight of the spindle. The steel spindle is $\frac{5}{8}$ inch diameter, and any chuck desired can be fitted to the lower end. The face plate is 7 inches in diameter, and is adjustable 3 inches. The whole hight of the machine is 2 feet, weight 22 pounds. This drill is constructed with a view of producing a machine for drilling holes from $\frac{1}{16}$ inches in diameter to the smallest size, one with which the most delicate drilling can be done with the same sensitiveness that a hole can be drilled with a bow drill. The material and workmanship are referred to as of the best, and the ornamentation as giving the machine a fine appearance.

Fig. 1.—Olmsted's Improved Upright Drill.

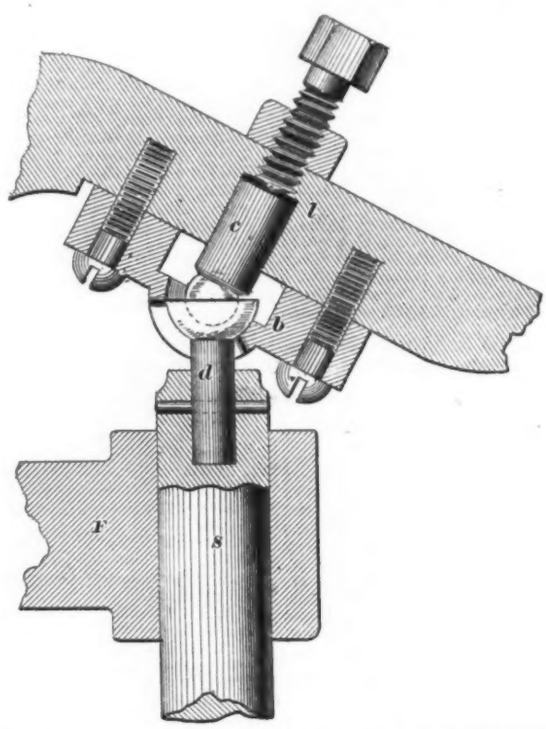


Fig. 2.—Showing the Attachment of the Lever to the Spindle in Olmsted's Drill.

The Satisfaction Oil Can.

The Michigan Can Mfg. Company, Grand Rapids, Mich., are putting on the market their 1890 Satisfaction Can, as illustrated in Fig. 1. The working of the can is described as follows: To start, the rod to which the knob is attached is raised

Fig. 1.—Exterior View of the Satisfaction Oil Can.

quickly by the hand, Fig. 2; the oil in the cylinder is thus forced by the piston into and perfectly charges the syphon tube. The rod is held up in position, when, it is stated, the oil flows in a continuous stream from the nozzle or outlet. To shut off the flow the rod is pushed down quickly, the oil is thus forced by the piston out of the cylinder, which is intended to empty the syphon and instantaneously stop the flow. The point is made that in this manner the flow may be started and shut off as often as occasion

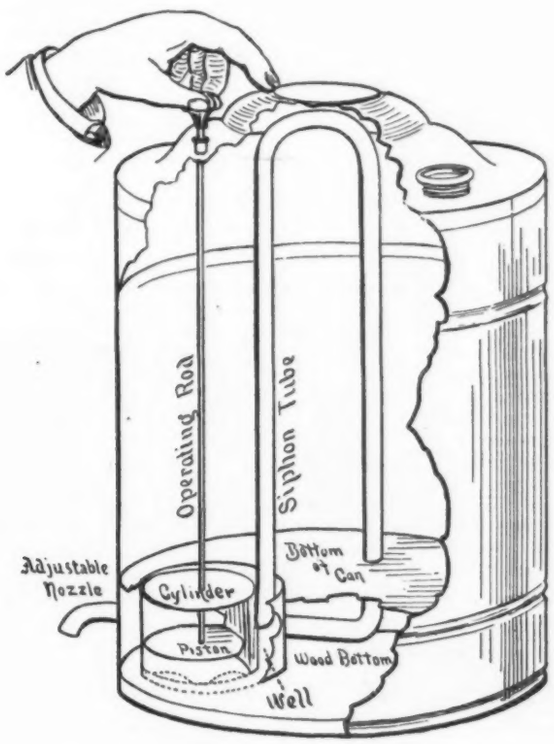


Fig. 2.—Interior View of the Satisfaction Oil Can.

may require until the can, except the cylinder, is entirely empty. Some of the points of excellence possessed by the can are referred to as being that no lifting or tilting of the can is necessary or persistent pumping required to operate it; that there are no valves, packing, stop cock, spigot or screw plug to get out of order or wear out; that there is no dripping from the nozzle when the flow is shut off, and that the nozzle or outlet which is liable to injury is in this can detachable and can readily be removed when necessary. The can is described as being made entirely of the best galvanized iron and metallic fittings, and is regarded as practically indestructible.

Steel Tapes.

The Lufkin Rule Company, Cleveland, Ohio, manufacturers of Steel Tapes, an illustration of which is given in Fig. 1, have recently begun putting them up in

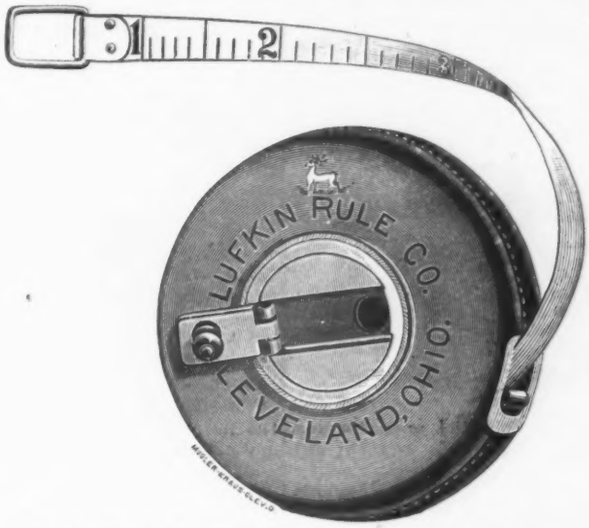


Fig. 1.—The Lufkin Rule Co.'s Leather Cased Steel Tapes.

Fig. 2.—Leatherette Box for Lufkin Steel Tapes.

boxes as shown in Fig. 2. These are referred to as exceedingly handsome round paper boxes, covered with leatherette or imitation leather. The tapes are put in the leatherette cases, after being nicely wrapped in tissue paper; then the cases are wrapped separately and each placed in a square box, to make it convenient for jobbers to mail to their customers. The manufacturers state in this connection that since they commenced making these goods it has been their endeavor to make them standard, and to demonstrate the fact that manufacturers in this country are able to make as good tapes as any one in the world.

Steel Chain.

Miller & Brewer, 83 Maiden lane, New York, importers, agents and dealers in chains, anchors, &c., have recently put on the market Bessemer steel chain, which they claim retains all the good qualities of the best iron chain, while being much superior in both tensile strength and durability. A sample of ⅝-inch Bessemer steel chain is exhibited, which, it is stated, did not part until subjected to a strain of 100,000 pounds. The breaking strain of ⅝-inch B B B crane chain is placed at 16,000 pounds. It will be seen that the above test was very severe. In the sample referred to the links have been drawn so firmly together that the chain has become rigid, and even hammering does not loosen the links. The making of a perfect steel chain, in which the steel was not brittle and the weld was perfect, has been so difficult an undertaking that we are advised the attempt has been repeatedly abandoned by manufacturers.

Colton's Patent Tool Holder.

A simple but very effective device is herewith illustrated which is intended for use in hanging tools out of the way. Fig. 1 shows the holder. It is made of coppered steel wire and is intended to be driven into a board above the tool bench. Figs. 2 and 3 show the holder in use. It is made in eight sizes, with the width of

Fig. 1.—Colton's Patent Tool Holder.

the opening between the arms ranging from ½ inch to 2 inches, so as to fit any kind of tools. All mechanics know how annoying it is to have tools scattered promiscuously upon the bench or falling on the floor. These holders are intended to guard against annoyances of this kind, and will therefore be highly appreciated

Fig. 2.—Colton's Holder in Use.

Fig. 3.—A Hammer in Colton's Holder.

by workmen of orderly habits. They are not only adapted to mechanics' use, but will also be found desirable in stores for the display of samples. Their shape gives them remarkable holding power, the curved loop below operating as a brace. In the larger sizes the extremity of the loop is flattened, making a sharp surface, which slightly penetrates the wood and increases the strength of the brace, while the points are also barbed. These goods are put up in paper telescope boxes containing a quarter of a gross, with each size packed separately or in assorted sizes as may be desired. They are manufactured by the Munger Colton Mfg. Company, for whom H. H. & C. L Munger, 142 Lake street, Chicago, are sole agents.

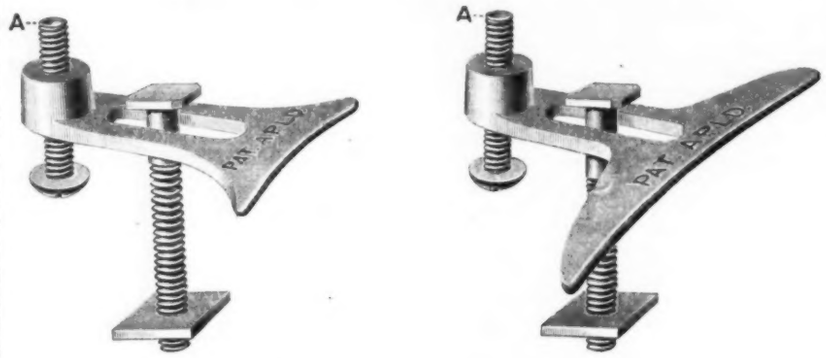
The Handy Gutter.

The Troy Stamping Works, of Troy, N. Y., have recently placed upon the market the Handy Gutter, some idea of the construction of which may be gathered from an inspection of the accompanying illustration. The object of the manufacturers has been to produce a metallic trough, or gutter, in sections, which may be readily put together and placed in position, as easily as sections of ordinary stove pipe. No solder is used in the construction of the article, and the sections being provided with a single bead, are easily joined to form either a right or left hand gutter, as the exigencies of the case may demand. This gutter is made of galvanized iron and in sections of 6 or 8 feet in length, and may be furnished with a double bead if required. It is so constructed as to be perfectly rigid and tight throughout. The ease with which the sections may be put together and taken apart renders the gutter especially convenient for carrying in stock in hardware and stove stores, tin shops, &c. In putting the sections together the ends are given a coat of paint before lapping, after which a center bolt is inserted in the lapped ends and through a hole in the fastener. The bolt is then tightened sufficiently to draw the sections and fastener firmly together. The ends of the fasteners are bent down over the lap and clinched, after which the bolts at the ends of the fastener are tightened as firmly as possible with a screw driver. The nut on the lower end of the center bolt above mentioned is tightened with a wrench, when the gutter is ready for use. The patentee of this form of gutter is William H. Hawkins, of Schaghticoke, N. Y.

The Handy Gutter.

Glauber's Basin Clamp.

In the accompanying illustrations we present views of two forms of an improved adjustable basin clamp, which is being placed upon the market by the Glauber Brass Mfg. Company, of Cleveland, Ohio. This clamp is so constructed as to be adjustable fully 1 inch in the slot, allowing the clamp to be regulated to its proper place, irrespective of the position of the holes which are drilled in the marble. Referring to the engravings, A represents an adjustable screw, which can be raised or lowered to fit the rim of any thickness on the wash bowl, thus avoiding, the manufacturers state, the time and trouble required to block under the basin clamp with a plug of wood or lead, as is often the case. The construction of the clamp is so clearly indicated in the cuts that further description is unnecessary. Reference is made to the fact that the use of this clamp will result in a saving of both time and money, and be of great convenience to plumbers.



Glauber's Adjustable Basin Clamps.

Selle's Patent End Gate Irons.

The Selle Gear Company, Akron, Ohio, are putting on the market patent end gate irons, as illustrated in Fig. 1. These are made of malleable iron, the upright piece being placed on the top of the body frame, and a hook and eye hinge on the under part of the frame, with corresponding holes, so one bolt passes through both irons. The upright piece is also screwed to the side board, and the strap of the

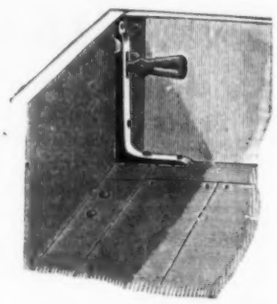


Fig. 1.—Selle's Patent End Gate Irons.

hinge is fastened to the inside of the end gate, Fig. 2 To the hinge strap is attached the latch for locking. These irons are described as serving as corner posts, braces and hinges; that they lock the end gate, and also lock the sides from spreading; and that they are practically self locking, as the latches fall into place by their own weight. They possess the advantage of having no springs to weaken, rattle or break, and there are no irons on the outside of the body. It is stated that the end gate may shut inside of the sides,

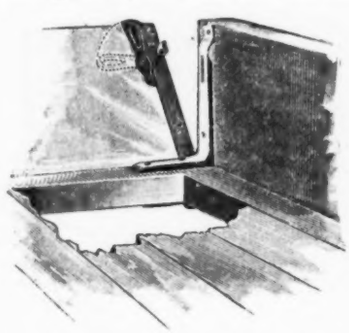


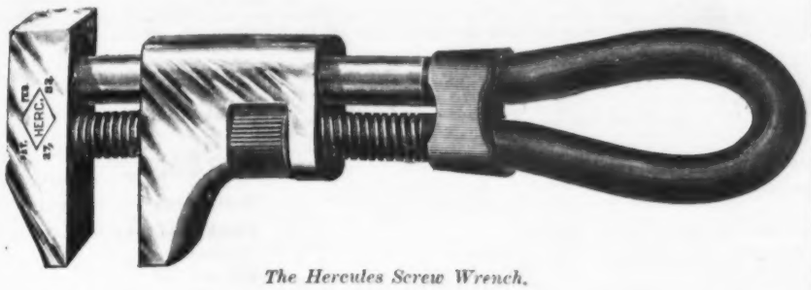
Fig. 2.—Showing Position of End Gate Irons with End Gate Open.

as shown in the illustrations, or, if preferred, against the ends of the sides.

New York capitalists contemplate establishing a large sugar refinery in Cuba, and report says that English capital is to be similarly invested.

The Hercules Screw Wrench.

The Capitol Mfg. Company, Chicago, are introducing the all steel Hercules wrench, as illustrated herewith. They are made in sizes from 5 to 12 inches, inclusive, and are intended to compete with

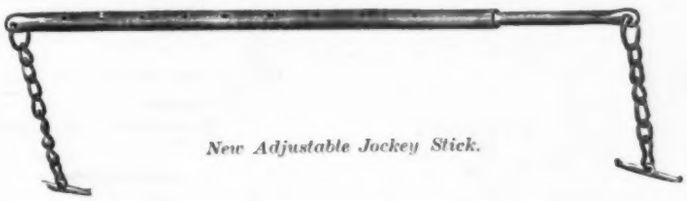


The Hercules Screw Wrench.

the cheaper classes of wrenches for the agricultural and domestic trade. The manufacturers claim the wrenches are strong and made of the very best grade of material, the handles being japanned with the best quality baking japan.

New Adjustable Jockey Stick.

The American Jockey Stick Company, Manchester, Md., are introducing a new adjustable jockey stick, as illustrated herewith. This being adjustable, the point is made that it will answer the same purpose as a number of different lengths of the ordinary article. Both sections are hollow, and a steel pin fastened to a steel spring, being pressed through any de-



New Adjustable Jockey Stick.

sired hole, makes the length from 3 to 5 feet, as desired. The manufacturers state that as some horses constantly work away from each other, while others crowd against one another a jockey stick saves the horses much worry, and aids the driver to do much better and more uniform work.

Expanded Metal Door Mat.

The Central Expanded Metal Company, Pittsburgh, Pa., are introducing an ex-

Expanded Metal Door Mat.

panded metal door mat as illustrated herewith. The body of the mat is made of sheet steel, cut in the form of mesh, as shown in the cut. The cut edges are turned on edge nearly at a right angle with the face of the sheet, thus forming a series of scrapers that cover the entire sole of the shoe. The frame is one piece of cold drawn steel of U shape, securely fastened around the edge of the sheet. It is referred to as being well galvanized, so that it is unaffected by mud or rain. Indeed the more rain the better, as the dirt which falls through the openings is thus washed to the floor or pavement and may be swept away. Both sides of the mat are alike, and can be used the same way. An advantage resulting from its being made of but two pieces is alluded to as doing away with the liability to show broken or displaced sections of metal or straggling ends. Another advantage is stated as being the low price at which it can be sold.

Colton's Patent File Cleaner.

A file cleaner has just been brought out by the Munger-Colton Mfg. Company, for whom H. H. & C. L. Munger, 142 Lake street, Chicago are sole agents. This tool is made of a piece of card clothing, in-

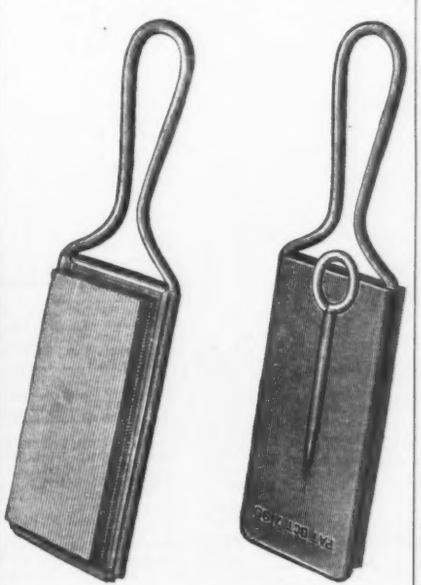
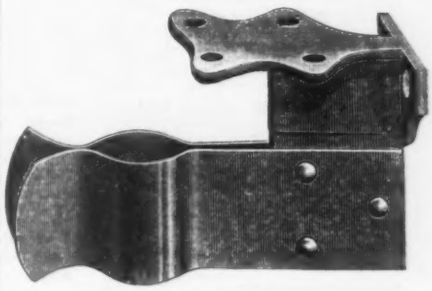


Fig. 1.—Colton's Patent File Cleaner. *Fig. 2.—Colton's No. 10 File Cleaner.*

closed in a steel back and frame. The illustration given above shows the No. 1 cleaner, with the card side exposed. The steel back is fastened to the card by special machinery, which secures it in place so completely that the card is made perfectly rigid and cannot get out of order until it is worn out. The No. 1 cleaner card is made of annealed iron wire. Fig. 2 shows the No. 10 cleaner, which is made of tempered steel wire and is therefore adapted to rougher usage. The back of this cleaner has a pocket forged in it to hold a picker, which is intended for use when particles adhere to a file so closely that they cannot be removed by the card. These cleaners are highly commended by practical workmen who have used them.

Lantern Holder.

W. B. Carpenter & Co., Bristol, Conn., are introducing a lantern holder, as illustrated herewith. The clasp holds the neck



Lantern Holder.

of a tubular lantern, the holder being screwed against the side or underneath as desired. It is intended to fasten on a vehicle to be used for driving at night. It can be attached to the front of a vehicle, but is recommended for use underneath, as in this position there is less liability of blinding the driver. It is stated that the clasp holds the lantern firm and steady so it does not rattle and cannot be detached by any motion of the vehicle. The holder is referred to as being small and not unsightly on the lightest carriage and is always ready for use. It may also be used for holding a lantern in a barn or other building with good results.

Chafing Dish.

St. Louis Stamping Company are placing on the market a useful adjunct to the kitchen, and one which will be appreciated

Chafing Dish.

by careful housewives. The article referred to is known as a chafing dish, and is principally intended for the stewing of oysters, but can readily be used for stews of all kinds. As shown in the cut, it consists of a granite ware pan, with cover and a convenient handle. Beneath the pan is placed an alcohol lamp, from which is obtained the necessary heat for cooking. The lamp is different from those usually seen, as it consists of a quantity of asbestos, filling covered with a piece of wire gauze, which equally distributes the flame over the bottom of the dish. The lamp is handsomely nickeled, and is easily kept clean, and has none of the disagreeable odor which usually accompanies articles of this kind.

CURRENT HARDWARE PRICES.

NOVEMBER 19, 1890.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

Adjusters, Blind.

Domestic.....₩ doz $3.00, 33⅓&5%
Excelsior.....₩ doz $10.00.....50&10&2%
Washburn's Self-Locking.....20&20&10%

Ammunition.—

Caps, Percussion, ₩ 1000—
Hicks & Goldmark's and Union Metallic Cartridge Co.
F. L. Waterproof, 1-10's.....34@35¢
E. B. Trimmed Edge, 1-10's.....46@48¢
E. B. Grnd. Edge, Cent. Fire, 1-10's.....46@47¢
Musket Waterproof, 1-10's.....50¢
G. D.....28¢
S. B. Genuine Imported.....45¢
Eley's E. B.....54¢ @ 55¢
Eley's D Waterproof, Central Fire...$1.60

Cartridges—
Rim Fire Cartridges.....50&5&2 %
Rim Fire Military.....15&2 %
Cent. Fire, Pistol and Rifle.....25&5&2 %
Cent. Fire, Military and Sporting 15&5&2 %
Blank Cartridges, except 22 and 32 cal., additional 10 % on above discounts.
Blank Cartridges, 22 cal., $1.75.....2 %
Blank Cartridges, 32 cal., $3.50.....2 %
Primed Shells and Bullets.....15&5&2 %
B. B. Caps, Round Ball, $1.75.....2 %
B. B. Caps, Con. Ball, Swgd., $2.00.....2%

Primers—
Berdan Primers, $1.00.....2%
B. L. Caps (for Sturtevant Shells) $1.00.....2%
All other Primers, $1.20.....2%

Shells—
First quality 4, 8, 10 and 12 gauge 25&10&2%
First quality, 14, 16 and 20 gauge ($10 list).....30&10&2%
Prize.....40&2%
Star, Club, Rival and Climax brands, 33⅓&10&2%
Selbold's Comb. Shot Shells.....15&2%
Brass Shot Shells, 1st quality.....60&2%
Brass Shot Shells, Club, Rival, Climax.....65&2%

Shells Loaded—
Standard List, July 19, 1890...40&10&5%

Wads—Price per M.

U.M.C.&W. R. A.—B. E., 11 up..	68¢	Dis. 20&2
U.M.C.&W. R. A.—B. E., 9&10...	82¢	
U.M.C.&W. R. A.—B. E., 8.....	96¢	
U.M.C.&W.R.A.—B. E., 7.....	$1.10	
U.M.C.&W. R. A.—P. E., 11 up..	1.15	
U.M.C.&W. R. A.—P. E., 9&10..	1.50	
U.M.C.&W. R. A.—P. E., 8.....	1.70	
U.M.C.&W.R.A.—P. E., 7.....	1.80	

Eley's B. E., 11 up.....$1.75
Eley's P. E., 11@20.....2.80

Anvils.—

Eagle Anvils, ₩ ℔ 10¢.....15@15&5%
Peter Wright's.....11¼¢
Armitage's Mouse Hole.....10¼@11¢
Armitage's Mouse Hole, Extra...12@12½¢
Trenton.....10@10½¢
Wilkinson's.....10½@11¢
Moore & Barnes Mfg. Co.....33⅓%

Anvil Vise and Drill—
Millers Falls Co., $18.00.....20%
Cheney Anvil and Vise.....25%
Allen Anvil and Vise, $3.00.....40&10%
Star.....45&5 %

Apple Parers—See Parers, Apple, &c.

Augers and Bits—

Douglass Mfg. Co.
Wm. A. Ives & Co.
Humphreysville Mfg. Co.
French, Swift & Co. (F. H. Beecher,...
P. S. & W. Co.
Rockford Bit Company.
} 70&10%

Cook's, Douglass Mfg. Co.....55 %
Cook's, N. H. Copper Co.50&10@50&10&5%
Ives' Circular Lip.....60%
Patent Solid Head.....30%
C. E. Jenning & Co., No. 10, extension lip.....40%
C. E. Jennings & Co., No. 30.....60%
C. E. Jennings & Co., Auger Bits, ₩ set, 32½ quarters, No. 5, $5; No. 30, $3.50.20%
Lewis' Patent Single Twist.....45%
Russell Jennings' Augers and Bits.25&10%
Imitation Jennings' Bits.....60@60&5%
Snell's Jennings Pattern.....60%
Pugh's Black.....20%
Rockford, Jenning's Pattern.....60%
Car Bits.....60@60&10%
Car Bits, P. S. & W. Co.....60&10%
Snell's Car Bits.....30%
L Hommodieu Car Bits.....15&10%
Forstner Pat. Auger Bits.....20%
Cincinnati Bell-Hangers' Bits....30&10%

Bit Stock Drills—
Morse Twist Drills.....50&10&5%
Standard.....50&10&5%
Cleveland.....50&10&5%
Syracuse, for metal.....50&10%
Syracuse, for wood (wood list).30@30&5%
Williams' or Holt's, for metal.50&10&10%
Williams' or Holt's, for wood...40&10%
Cincinnati, for wood.....30&10%
Cincinnati, for metal.....45&10%

Expansive Bits—
Clarks' small, $18; large, $26 ₩ .35@35&5%
Ives' No. 4, ₩ doz $60.....40%
Swan's.....40%
Steer's, No. 1, $26; No. 2, $22.....35%
Stearns' No. 2, $48.....20%

Gimlet Bits—
Common.....₩ gross $2.75@$3.25
Diamond.....₩ doz $1.10.....25&10%
Bee.....25@25&5%
Double Cut, Shepardson's....45@4[illegible]&10%
Double Cut, Ct. Valley Mfg. Co...30&10%
Double Cut, Hartwell's, ₩ gro.....$5.25
Double Cut, Douglass'.....40&10%
Double Cut, Ives'.....60@60&10%

Hollow Augers—
Ives
French, Swift & Co.
Douglass'
} 33⅓ @ 33⅓&10%

Bonney's Adjustable, ₩ doz $48...40&10%
Stearns'.....20&10%
Ives' Expansive, each $4.50.....50&5%
Universal Expansive, each $4.50.....20%
Wood's.....25@25&10%
Cincinnati Adjustable.....25&10%
Cincinnati Standard.....25&10%

Ship Augers and Bits—
L'Hommedieu's.....15&10@15&10&5%
Watrous'.....15&10@15&10&10%
Snell's.....15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits, 15&10@15&10@5%

Awl Hafts—See Hafts, Awl.

Awls, Brad Sets, &c—

Awls, Sewing, Common ₩ gr $1.70, 35%
Awls, Should. Peg, ₩ gr $2.45, 40@40&10%
Awls, Pat. Peg...₩ gr 63¢.....40@40&10%
Awls, Shouldered Brad..2.70 ₩ gr.....35%
Awls, Handled Brad...$7.50 ₩ gr.....45%
Awls, Handled Scratch ₩ gr, $7.50.35&10%
Awls, Socket Scratch, ₩ doz, $1.50.25@30%

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

	Plain.	Beveled.
First quality	$8.00	$8.50
Others	7.50	8.00

Axle Grease—See Grease, Axle.

Axles—

No. 1, 4¼@5¢, No. 2 5½@6¼$
Nos. 7 to 14.....55&5%
Nos. 15 to 18.....47½$
Nos. 19 to 22.....70$
} 3 % cash

Concord Axles, loose collar.....5@6¢
Concord Axles, solid collar.....6@7¢
National Tubular Self-Oiling.....33⅓&5%

Bag Holders.—See Holders, Bag.

Balances—

Spring Balances.....40%

	No. 2000	20	30
Chatillon, ₩ doz	$0.80	0.95	1.75 net

Chatillon Straight Balances.....40%
Chatillon Circular Balances.....50&10%

Bars.

Cross—
Cast Steel.....₩ ℔ 4¼¢
Iron, Steel Points.....₩ ℔ 3¼¢

Basins, Wash—

Standard Fiberware, No. 1, 10½ inch, $2; 12-inch, $2.25; 13½-inch, $2.75; 15-inch, $3.25.

Beams, Scale—

Scale Beams, List Jan. 12, '82...50&10@ 50&10&5%

Chatillon's No. 1.....40%
Chatillon's No. 2.....50%
Custer's.....33⅓%

Beaters—

Egg—
Dover.....₩ doz $1.50
Duplex (Standard Co.).....₩ doz $1.25
Rival (Standard Co.).....₩ doz $1.00
Duplex Extra Heavy (Standard Co.)... ₩ doz $6.50
Bryant's.....₩ gro $14.00
Double (H. & R. Mfg. Co.), ₩ gro. No. 0, $12.00; No. 1, $15.00; No. 2.....$36.00
Easy (H. & R. Mfg. Co.).....₩ gro $12.00
Triple (H. & R. Mfg. Co.).....₩ gro $16.50
Spiral (H. & R. Mfg. Co.).....₩ gro $4.50
Improved Acme (H. & R. Mfg. Co.)... ₩ gro $9.00
Paine, Diehl & Co.'s.....₩ gro $24.00
Silver & Co.....₩ doz $5.50

Culinary—
Keystone, P. D. &C., Each, No. 1, $1; No. 2, $2.....20 %

Bells—

Cow—
Common Wrought.....60&10%
Western.....20&10%
Western, Sargent's list.....70&10%
Kentucky, "Star".....20&10%
Kentucky, Sargent's list.....70&10%
Dodge, Genuine Kentucky....70@70&10%
Texas Star.....50&10@50&10&5%
Call.....40@40&5%
Farm Bells.....₩ ℔ 3¢@3½¢
Steel Alloy Church and School Bells..40%

Door—
Gong, Abbe's.....33⅓&10%
Gong, Yankee.....45&10%
Gong, Barton's.....40&10@50%
Crank, Taylor's.....25&10%
Crank Brooks'.....50&10&2%
Crank Cone's.....10%
Crank, Connell's.....30&10%
Lever, Sargent's.....60&10%
Lever, Taylor's Bronzed or Plated....net
Lever, Taylor's Japanned.....25&10%
Lever, R. E. M. Co.'s.....50&10&2%
Pull, Brook's.....50&10&2%
Pull, Western.....25&10%

Electric,
Wollensak's.....20%
Bigelow & Dowse.....20%
Taylor's.....20%

Hand—
Light Brass.....75&10%
Extra Heavy.....65&10%
White Metal.....60&10&10%
Silver Chime.....33⅓&10%
Globe (Cone's Patent).....25&10@35%

Bellows—

Blacksmiths'.....60&5@65%
Molders'.....40@40&10%
Hand Bellows.....40&10@50%

Belting, Rubber—

Common Standard.....70@70&5%
Standard.....60&10&10@70%
Extra.....50&10@60%
N.Y.B.&P.Co., Carbon...50&5@50&10&5%
N.Y.B.&P.Co., Diamond....40&5@40&10%

Bench Stops—See Stops, Bench.

Benders, Upsetters, Tire.

Stoddard's Lightning Tire Upsetters..15%
Detroit Perfected Tire Bender.....15%

Bits—

Auger, Gimlet, Bit Stock, Drills, &c., see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—

Ordinary Tackle, list May 20, 1889... See Trade Report.
Cleveland Block Co., Mal. Iron.....50%
Moore's Novelty, Mal. Iron.....50%

Boards, Stove.

Wood Lined "Crystal".....50%
"Embossed".....50%
"Oxidized".....45%
Paper Lined Zinc.....55%
"Crystal".....55%
"Embossed".....55%
"Oxidized".....45%

Bolts—

Carriage, Machine, &c.—
Com. list June 10, '84.....70&10&5&2%
Genuine Eagle, list Oct., '84...75&10@80%
Phila. pattern, list Oct. 7, '84..80@80&10%
R.B.&W., old list.....70%
Machine, list Jan. 1, 1890.....75&10@75&10&5%
Bolt Ends, list Jan. 1, 1890.....75&10@75&10&5%

Door and Shutter—
Cast Iron Barrel, Square, &c..70@70&10%
Cast Iron Shutter Bolts.....70@70&10%
Cast Iron Chain (Sargent's list)....65&10%
Ives' Patent Door Bolts.....60%
Wrought Barrel.....70@70&10%
Wrought Square.....70@70&10%
Wr't Shutter, all Iron, Stanley's..60&10%
Wr't Shutter, Brass Knob, " ..40&10%
Wr't Shutter, Sargent's list.....60&10%
Wr't Sunk Flush, Sargent's list...55&10%
Wr't Sunk Flush, Stanley's list...50&10%
Wr't B.K.Flush. Com'n " ...55&10%

Stove and Plow—
Stove.....60%
Plow.....60&5%
R. B. & W., Plow.....55%

Tire—
Common, list Feb. 28, '83.....65%
Port Chester Bolt and Nut Company:
Empire, list Feb 28, '83.....65%
Keystone, Philadel., list Oct. '84....80%
Norway, Phila., list Oct. '84.....75%
American Screw Company:
Norway, Phil., list Oct. 16, '84.....75%
Eagle, Phil., list Oct. 16, '84.....80%
Philadel., list Oct. 16, '84.....80%
Bay State, list Feb. 28, '83.....65%
R.B.&W., Philadel., list Oct. 16, '84....80%

Borers, Tap.

Common and Rind.....20&10%
Ive's Tap Borers.....33⅓&5%
Enterprise Mfg. Co.....20&10@30%
Clark's.....33⅓@35%
Borax.....₩ ℔ 9½@10¼¢
Boring Machines—See Machines, Boring.

Bow Pins—See Pins, Bow.

Boxes, Wagon.

Per ℔.....2¾¢

Braces.—

American Bit Brace Co.:
Nos. 10, 12, 20.....60&10%
Nos. 11, 21, 24, 27.....70&10%
Nos. 22, 23, 25.....60&10&5%
Nos. 13, 26, 36, 37.....70&10&5%
Ball Braces, net.....$1.12 to $1.25¢
Amidon's
Barker's Imp'd Plain.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet.....75&10@80%
Eclipse Ratchet.....60%
Globe Jawed.....40@40&10%
Corner Brace.....40@40&10%
Universal, 8 in., $2.10 10 in.....$2.25
Buffalo Ball.....$1.10@$1.15
Barber's,
Nos. 10 to 16.....50%
Nos. 30 to 33.....50%
Nos. 40 to 63.....50&10%
Saxton's,
Barker's Imp. Polished.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet, Polished.....50&10@60%
Ratchet, Nickeled.....40&10@50%
Buffalo Ball.....net, $1.10@$1.15
Bartholomew's,
Nos. 25, 27 and 30.....50&10@60&5%
Nos. 117, 118, 119.....70@70&5%
Common Ball, American.....$1.00@$1.10
Fray's Genuine Spofford's..50&5@50&10%
Fray's No. 70 to 120, 81 to 123, 207 to 414 50&10%
Ives' New Haven Novelty.....70@70&5%
New Haven Ratchet.....60&5@60&10%
Barber Ratchet.....60&5@60&10%
Barbers.....60&5%
Spofford.....60&5@60&10%
Osgood's Ratchet.....40&10@50%
P. S. & W. Co., Peck's Patent.....60%

Brackets

Shelf plain, Sargent's list, 55&10@55& 10&10%
Shelf, fancy, Sargent's list, 60&10@60 &10&10%
Reading, plain.....50&10@60&10&5%
Reading, Rosette.....60&10@60&10&10%

Bright Wire Goods—See Wire.

Broilers—

Henis' Self-	Inch.....	9	10 9x11
Basting.	Per doz.	$4.50	5.50 6.50

New Haven.....50%

Buckets, Well.

Galvanized—
Hill's.....₩ doz, 12 qt, $4.25; 14 qt, $5.2[illegible]
Iron Clad.....₩ doz. 14 qt, $4.25@$4.5[illegible]
Helwig's Flat Iron Band.....$3.75
Helwig's Wired Top.....₩ doz $4.00

Bull Rings—See Rings, Bull.

Butcher's Cleavers—See Cleavers Butchers'.

Butts—

Brass—
Wrought Brass.....75&10@80%
Cast Brass, Tiebout's'.....50%
Cast Brass, Corbin's, Fast.....33⅓&10%
Cast Brass, Loose Joint.....33⅓&10%

Cast Iron—
Fast Joint, Narrow.....50&10&5@50%
Fast Joint, Broad.....50&10@60%
Loose Joint.
Loose Joint, Japanned.
Loose Joint, Jap. with Acorns.
Parliament Butts.
Mayer's Hinges.
Loose Pin, Acorns.
Loose Pin, Acorns, Japanned.
Loose Pin, Acorns, Japanned, Plated Tips.
} 70&10 @ 75%

Wrought Steel—
Fast Joint, Narrow.
Fast Joint, Lt. Narrow.
Fast Joint, Broad.
Loose Joint, Broad.
Table Butts, Back Flaps, &c
Inside Blind, Regular.
Inside Blind, Light.
Loose Pin.
} 70&10 @75%

Bronsed Wrought Butts.....50

Calipers—See Compasses.

Calks, Toe—

Gautier.....₩ ℔ 5½@6¢
Dewicks (Burke).....₩ ℔ 5½@6¢

Can Openers—See Openers, Can.

Cards—

Horse & Curry.....10&10&10&10%
Cotton.....10&10&10%
Wool.....10&10&10%

Carpet Stretchers—See Stretchers Carpet.

Carpet Sweepers—See Sw Carpet.

Cartridges—See Ammunition.

Casters—

Bed.....
Plate.....
Shallow Socket.....
} Brass....55@55&10%
} Others...60@60&10%

Deep Socket.....40&10%
Yale Casters, list May, 1884...30&10@40%
Yale, Gem.....60@60&5%
Martin's Patent (Phœnix).....45&10@50%
Payson's Anti-friction.....60@60&10%
Giant Truck Casters.....30%
Stationary Truck Casters.....50&10%
Socket Truck Casters.....50%

Cattle Leaders—See Leaders, Cattle.

Chain—

Trace, Wagon and Fancy Chains, List revised April 21, 1890.....50& 10@60%

American Coil, in cask lots,

3-16	¼	5-16	⅜	7-16	½	⅝	¾
$7.75	5.45	4.55	4.00	3.65	3.50	3.40	3.30

Less than cask lots, add ¼¢@½¢ ₩ ℔.
German Coil, list Oct. 6, 1890 50&10&5@60%
German Halter Chain, list Oct. 6, 1890 50&10&5@60%
Covert Halter.....60&2%
Covert Traces.....35&2%
Covert Heel Chain.....50&2%
Oneida Halter Chain.....60@60&5%
Galvanized Pump Chain.....₩ ℔ 5½@6¢
Jack Chain, Iron.....75&10@80%
Jack Chain, Brass.....75@75&10%

Chalk—

White.....₩ gr 50¢
Red.....₩ gr 70¢
Blue.....₩ gr 85¢
See also Crayons.

Chalk Lines—See Lines.

Chisels—

Socket Framing and Firmer.
P. S. & W.
New Haven.
Witherby.
Mix.
Ohio Tool Co.
} ..75 @ 75&10

Douglass.....75@75&5%
Buck Bros.....30%
Merrill.....60&10@60&10&5%
L. & I. J. White.....30@30&5%

Tanged and Miscellaneous.
Tanged Firmers.....40&10@50%
Butchers'.....$4.75@$5.00
Spear & Jackson's.....$5 to $
Buck Bros.....30%
Cold Chisels, ₩ ℔.....15@16¢

Chucks—

Beach Pat.....each, $8.00.....20%
Morse's Adjustable,each, $7.00, 20@20&5%
Danbury.....each, $6.00, 30@30&5%
Syracuse, Bals Pat.....25%
Skinner's Patent Chucks.
Combination Lathe Chucks.....33⅓%
Universal Lathe Chucks.....40%
Independent Lathe Chucks.....40%
Drill Chucks.....15%
Union Mfg. Co.,
Victor.....$8.50, 25%
Combination.....40%
Universal.....40%
Independent.....40%

Churns.

Tiffin Union No. 1, 5 gallon...$3.25 each
Tiffin Union No. 2, 7 gallon...$3.75 each
Tiffin Union No. 3, 10 gallon...$4.25 each

Clamps—

R. I. Tool Co.'s Wrought Iron.....25%
Adjustable, Cincinnati.....15&10%
Adjustable, Hammers.....15%
Adjustable, Stearn's.....30@30&10%
Stearn's Adjustable Cabinet and Corner.....30@30&10%
Cabinet, Sargent's.....60%&10%
Carriage Makers', Sargent's.....70&10%
Carriage Makers', P., S. & W. Co..40&10%
Eberhard Mfg. Co.....40&10@40&10&5%
Warner's.....40&10@40&10&5%
Saw Clamps, see Vises, Saw Filers'.
Carpenters', Cincinnati.....25&10%

Cleavers.

Butchers'.
Bradley's.....25@30%
L. & I. J. White.....20&5%
Beatty's.....40@40&5%
New Haven Edge Tool Co.'s.....40%
P., S. & W.....33⅓&5@33⅓&10%
Foster Bros.....30%
Schulte, Lohoff & Co.....40@40&5%

Clips—

Norway, Axle, ¼ & 5-16.....55&5&5%
2nd grade Norway Axle, ¼ & 5-16. 65&5%
Superior Axle Clips.....66⅔&5&70%
Norway Spring Bar Clips, 5-16..60&5&5%
Wrought-Iron Felloe Clips.....₱ ℔, 5½¢
Steel Felloe Clips.....₱ ℔, 5¢
Baker Axle Clips.....15%

Cloth and Netting, Wire—See Wire, &c.

Cockeyes.....50%

Cocks, Brass.

Hardware list.....50&2%

Coffee Mills—See Mills, Coffee.

Collars, Dog, &c.

Medford Fancy Goods Co.....40&10%
Embossed, Gilt, Pope & Steven's list 30&10%
Leather, Pope & Steven's list.....40%
Brass, Pope & Steven's list.....40%
Chapman Mfg. Company.....50&10@60%

Combs, Curry.

Fitch's.....50&10@50&10@10%
Rubber, per doz $10.00.....20%
Perfect.....50%

Compasses, Dividers, &c.—

Compasses, Calipers, Dividers.70@70&10%
Bemis & Call Co.'s
Dividers.....60&5%
Compasses & Calipers.....50&5%
Wing and Inside or Outside.....50&5%
Double.....60%
(Call's Pat. Inside).....30%
Excelsior.....50%
J. Stevens & Co.'s.....25&10%
Starrett's
Spring Calipers and Dividers....25&10%
Lock Calipers and Dividers.....25%
Combination Dividers.....25%

Coopers' Tools—See Tools, Coopers'.

Cord, Sash—

Common.....₱ ℔ 10@11¢
Patent, good quality.....₱ ℔ 13@13½¢
White Cotton Braided, fair...₱ ℔ 28@29¢
Common Russia Sash.....₱ ℔ 13½¢
Patent " .....₱ ℔ 15¢
Cable Laid Italian Sash.....₱ ℔ 22@23¢
Indian Cable Laid " .....₱ ℔ 13¢
Silver Lake—
A Quality, White, 50¢.....10&10&5%
A Quality, Drab, 55¢.....10&10&5%
B Quality, White, 50¢.....28@30%
B Quality, Drab, 55¢.....31@33%
C Quality, White (only).....26@27¢
Sylvan Spring, Extra Braided, White, 34¢
Sylvan Spring, Extra Braided, Drab..39¢
Semper Idem, Braided, White.....30¢
Egyptian, India Hemp, Braided.....25¢
Samson—
Braided, White Cotton, 50¢...30@30&5%
Braided, Drab Cotton, 55¢...30@30&5%
Braided, Italian Hemp, 55¢...30@30&5%
Braided, Linen, 80¢.....30@30&5%

Corkscrews—See Screws, Cork.

Corn Knives and Cutters—See Knives, Corn.

Crackers, Nut—

Table (H. & B. Mfg. Co.).....40%
Blake's Pattern.....₱ doz $2.00, 10%
Turner & Seymour Mfg. Co.....50%

Cradles—

Grain.....50&5&2@50&10&2%

Crayons.

White Crayons, ₱ gr, 12¢@12½¢.....10%
D. M. Steward Mfg. Co., Metal Workers, ₱ gr, $2.50.....25%
M. Stewart Mfg. Co., Rolling Mill, ₱ gr, $2.50.....25%
See also Chalk.

Crow Bars—See Bars, Crow.

Curry Combs—See Combs, Curry.

Curtain Pins—See Pins Curtain.

Cutters—

Meat.
Dixon's ₱ doz.....40&5%
Nos.... 1 2 3 4
$14.00 $17.00 $19.00 $30.00
Woodruff's ₱ doz.....40&5%
Nos.... 100 150
$15.00 $18.00
Hales Pattern ₱ doz.....70@70&5%
Nos.... 11 12 13
$27.00 $33.00 $45.00
American.....30%
Nos.... 1 2 3 4 B 5
Each....$5 $7 $10 $25 $50 $60
Enterprise.....30%
Nos.....10 12 22 32 42
Each.....$3 $2.50 $4 $6 $15
Great American Meat Cutter.....30%
Nos 112 116 118 120 122
Each....$2.00 $2.75 $3.00 $2.50 $4.00
Miles' Challenge ₱ doz.....45@45&10%
Nos.... 1 2 3
$22.00 $30.00 $40.00
Home No. 1.....₱ doz, $26.00, 55&10%
Draw Cut, each:
Nos..5 2 6 8
$50 $75 $80 $225 .....20@25%
Great American.....30%
Beef Shavers (Enterprise).....20&10@30%
Little Giant.....50%
Chadborn's Smoked Beef Cutter, ₱ doz $66.00

Tobacco.
Champion.....20&10@30%
Wood Bottom.....₱ doz $5.00@$5.25
All Iron.....₱ doz $4.25
Nashua Lock Co.'s...₱ doz, $18.00 50@55%
Wilson's.....55%
Sargents's.....₱ doz, $24, 55&10%
Acme.....₱ doz $20.00, 40%

Washer.
Smith's Pat.....₱ doz $12.00, 20&10&10%
Johnson's.....₱ doz $11.00, 33⅓%
Penny's, ₱ doz Pol. $14; Jap'd, $16.00, 55%
Appleton's.....₱ doz $16.00, 60&10%
Bonney's.....30&10%
Cincinnati.....25&10%

Cutlery—

Beaver Falls & Booth's.....33⅓
Wostenholm.....New list in preparation

Dampers, &c—

Dampers, Buffalo.....40&10%
Buffalo Damper Clips.....40&10%
Crown Damper.....40%
Excelsior.....40&10%

Diggers, Post Hole, &c.—

Samson Post Hole Digger, ₱ doz $36.00, 25%
Fletcher Post Hole Augers, ₱ doz $36, 20%
Eureka Diggers.....₱ doz $12.50@14.00
Leed's.....₱ doz $8.00@9.00
Vaughan's Post Hole Auger, ₱ doz $13.00@14.00
Kohler's Little Giant.....₱ doz. $18.00
Kohler's Hercules.....₱ doz. 15.00
Kohler' New Champion.....₱ doz. $9.00
Schniedler.....₱ doz. $18.00
Ryan's Post Hole Diggers...₱ doz $24.00
Cronk's Post Bars, ₱ doz $60.00, 50&5@50&10%
Gibbs Post Hole Digger, ₱ doz $30.00, 50%
Imperial, ₱ doz $15.....45%

Dividers—

See Compasses.

Dog Collars—See Collars, Dog, &c.

Door Springs—See Springs, Door.

Drawers.

Money, ₱ doz.....$18&$20

Drawing Knives—See Knives, Drawing.

Drills and Drill Stocks—

Blacksmiths'.....each $1.75
Blacksmiths' Self-Feeding, each $7.50,20%
Breast, P. S. & W.....40&10%
Breast, Wilson's.....30&5%
Breast, Millers Falls.....each $3.00, 25%
Breast, Bartholomew's....each $2.50, 25&10@40%
Ratchet, Merrill's.....20@20&5%
Ratchet, Ingersoll's.....25%
Ratchet, Parker's.....20@20&5
Ratchet, Whitney's.....20&10%
Retchet, Weston's.....20@25%
Ratchet, Moore's Triple Action...25@30%
Ratchet, Curtis & Curtis.....30%
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.....20&10%
Wilson's Drill Stocks.....10%
Automatic Boring Tools.....$1.75@$1.85

Twist Drills—
Morse.....50&10&5%
Standard.....50&10&5%
Syracuse (Metal list).....50&10%
Cleveland.....50&10&5%
Williams.....50&10&10%
New Process.....50&10&5%

Drill Bits.—See Augers and Bits.

Drill Chucks.—See Chucks.

Dripping Pans-See Pans, Dripping.

Drivers, Screw.

Douglas Mfg. Co.....20@20&10%
Disston's.....50%
Buck Bros.....30%
Stanley R. & L. Co.'s
Varnished Handles.....65&10%
Black Handles.....60&10%
Sargent & Co.'s
No. 1 Forged Blade.....60&10&10%
Nos. 20, 30 and 60.....66⅔&10&10%
P. S. & W.....70%
Knapp & Cowles No.1.....60&20&70%
No. 1 Extra.....60@60&10
Nos. 00 & 4.....50&5@50&10&5%
Stearns'.....25&10&5%
Gay & Parsons.....35%
Champion.....25&10%
Clark's Pat.....30@33⅓%
Crawford's Adjustable.....30%
Ellrich's Socket and Ratchet..25@25&10%
Allard's Spiral, new list.....25%
Kolb's Common Sense ₱ doz $6.00,25&10%
Syracuse Screw-Driver Bits...30&30&5%
Screw-Driver Bits.....₱ doz. 50@75¢
Screw-Driver Bits, Parr's.....₱ gro $6.25
Fray's Hol. Hdle. Sets. No. 3, $12.00, 25@25&10%
P. D. & Co.'s all Steel.....50%
Cincinnati.....25&10%
Brace Screw Drivers.....25&10%
Buck Bros.' Screw-Driver Bits ....

Egg Beaters.—See Beaters, Egg.

Egg Poachers.—See Poachers, Egg.

Electric Bell Sets.—See Bells, Electric.

Emery. — No. 4 to No. 54 to Flour, CF

	46 gr.	150 gr.	F. FF.
Kegs, ₱ ℔	4½¢	5 ¢	2½¢
½ kegs, ₱ ℔	4¾¢	5¼¢	2¾¢
¼ kegs, ₱ ℔	5 ¢	5½¢	3 ¢
10-℔ cans, 10 in case	6 ¢	6¾¢	5 ¢
10-℔ cans, less than 10	10 ¢	10 ¢	7½¢

Enameled and Tinned Ware—See Ware, Hollow.

Escutcheon Pins—See Pins, Escutcheon.

Escutcheons.

Door Lock....Same dis as Door Locks.
Brass Thread.....60@60&10%
Wood.....25%

Expanded Metal.
List No. 5.

Lathing.....10%
Fencing, Painted Sheets.....20%
Netting, Painted Sheets.....20%
Door Mats, Galvanized.....25%
Window Guards, Paneled.....15%
Tree Guards, Paneled.....15%

Fasteners, Blind—

Mackrell's, ₱ doz. $1.00.....20@20&10%
Van Sand's Screw Pat., $15 ₱ gr..60&10%
Van Sand's Old Pat., $15.00 ₱ gr..55&10%
Washburn's Old Pattern, ₱ gr.....$9.00
Merriman's.....new list
Austin & Eddy No. 2008 ₱ gr.....$9.00
Security Gravity, ₱ gr.....$9.00

Faucets.—

Fenn's.....40%
Bohren's Pat. Rubber Ball.....25%
Fenn's Cork Stops.....33⅓%
Star.....60%
Fray's Pat. Petroleum.....40&5&2%
B. & L. B. Co.
West's Lock, Open and Shut Key...50%
Star, Metal Plug, new list.....40%
Lockport, Metal Plug, reduced list..60%
Metallic Key, Leather Lined....60&10@60&10&10%
Cork Lined.....70&5@70&10%
Burnside's Red Cedar.....50%
Burnside's Red Cedar, bbl lots....50&10%
John Sommers'
Peerless Best Block Tin Key.....40%
LXL, 1st quality, Cork Lined.....50%
Diamond Lock.....40%
Perfection, Pla. Red Cedar.....50%
Goodenough Cedar.....50%
Boss Metallic Key.....50%
Reliable Cork Lined.....60%
Western Pattern Cork Lined.....50%
Self-Measuring
Enterprise, ₱ doz $50.00.....20&10%
Lane's, ₱ doz $36.00.....25&10%
Victor, ₱ doz $36.00.....25&10%

Felloe Plates—See Plates, Felloe.

Fifth Wheels.—

Derby and Cincinnati.....45&5%
Brewster.....50&5%

Files—

Domestic—
Nicholson Files, Rasps, &c.....60&10@60&10&5%
Nicholson (X. F.) Files.....25%
Nicholson's Royal Files (Seconds).....75%
(extra prices on certain sizes)
Other makers, best brands60&10@60&20%
Fair brands.....60&10&10@70&5%
Second quality.....70&10@75&10%
Nicholson's Horse Rasps....60&10@60&10&5%
Heller's Horse Rasps.....50&7½@50&10%
McCaffrey's Horse Rasps.....50&10%
Chelsea Horse Rasps, Hand Cut...50&10%

Imported—
Moss & Gamble....List, April 1, 1883, 15%
Butcher.....Butcher's list, 20%
Stubs.....Stubs list, 25@30%
Turton's.....Turton's list, 20@25%
Greaves' Horse Rasps..American list, 60%

Fixtures.

Grindstone—
Sargent's Patent.....70&10%
Reading Hardware Co.....30&10%
P., S. & W. Co.....50&10%

Fluting Machines—See Machines, Fluting.

Fluting Scissors—See Scissors, Fluting.

Fodder Squeezers—See Squeezers, Fodder.

Forks—

Hay, Manure, &c., Asso List....66⅔@70%
Hay, Manure, &c., Phila. List. 60@60&5%
Plated, see Spoons.

Frames—

Saw—
White Vermont.....₱ gro $9.00@10.00
Red, Polished and Varnished.....₱ doz $1.50, 25%

Screen, Window and Door—
Porter's Pat. Window and Door Frame. 33⅓&10%
Warner's Screen Corner Irons..33⅓&3
Stearns' Frames and Corners..25@25&10%

Freezers, Ice Cream—

White Mountain.....60@60&5%
Granite State.....65@65&5%
Arctic.....70@70&5%
American.....60%
Buffalo Champion.....65@65&5%
Shepard's Lightning.....65@65&5%
Gem.....65%
Blizzard.....70%
Double Action Crown.....60%
Crown.....60%
Star.....60%
Peerless and Giant.....60&10%
Zero and Pet.....65&10%
Boss.....65&10@10%
Keystone, P. D. & Co., each, $1.50....20%

Fruit and Jelly Presses—See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.

Funnels.

Gersdorff's Perfection, Standard and Globe; *Tin*, 1 gro., 10 %; 2 to 5 gro., 20 %; 5 to 10 gro.....30 %
Copper, 1 to 6 doz., 15 %; 6 to 12 doz., 20 %; over 12 doz.....25 %

Fuse— ₱ 1000 ft
Common Hemp Fuse, for dry ground.$2.70
Common Cotton Fuse, for dry ground 2.85
Single Taped Fuse, for wet ground.. 3.85
Double Taped Fuse, for very wet gr.. 4.85
Triple Taped Fuse, for very wet gr.. 5.60
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water.12.00

Gates, Molasses—

Stebbin's Pattern.....75&10@80%
Stebbin's Genuine.....60&10&10%
Stebbin's Tinned Ends.....40&10%
Chase's Hard Metal.....50&10%
Sush's.....30%
Lincoln's Pattern.....70@70&10%
Weed's.....20&10%
Boss, ₱ doz:
No. 1, $7; No. 2, $8; No. 3, $9; No. 4, $10.....60&10&10%

Gauges.

Marking, Mortise, &c.....60&10%
Starrett's Surface, Center and Scratch. 25&10%
Wire, low list.....10&10%
Wire, Wheeler, Madden & Co.....10%
Wire, Morse's.....25%
Wire, Brown & Sharpe's.....10&20%
Wire, P. S. & W. Co.....10&10%

Gimlets—

Nail and Spike.....50&10&5%
" Eureka " Gimlets.....40&10%
" Diamond " Gimlets.....₱ gr $5.00
Double Cut, Shepardson's.....45@45&5%
Double Cut, Ives'.....60@60&5%
Double Cut, Douglass'.....40&10%
" Bee," ₱ gr $12.....25@25&5%

Glue—

Le Page's Liquid.....25@25&5%
Upton's Liquid.....35%
Le Page & Co.'s Improved Process 25@25&5%

Glue Pots—See Pots, Glue.

Grease, Axle.

Fraser's.....Keg ₱ ℔ 4¢, Pail ₱ ℔ 5¢
Fraser's, in boxes.....₱ gr $9.50
Dixon's Everlasting, in bxs...₱ doz 1 ℔ $1.20; 2 ℔ $2.00
Dixon's Everlasting....10-℔ pails, ea. 35¢
Lower grades, special brands, ₱ gr $5.50@$7.00

Grindstones—

Small, at factory.....₱ ton $7.50@9.00

Grindstone Fixtures—See Fixtures, Grindstone.

Hack Saws—See Saws.

Hafts. Awl.

Sewing, Brass Fer. ₱ gr, $3.50.....45&10%
Pat. Sewing, Short. $1.00 ₱ doz.....40&10%
Pat. Sewing, Long.....₱ doz $1.20
Pat. Peg, Plain Top. ₱ gr $10.00...45&10%
Pat. Peg, Leather Top. ₱ gr $12.00.45&10%

Halters.

Covert's, Rope, ½-in. Jute.....50&2%
Covert's, Rope, ½-in. Hemp.....50&2%
Covert's Adj. Rope Halters.....40&2%
Covert's Hemp Horse and Cattle Tie, 50&2%
Covert's Jute Horse and Cattle Ties, 60&10&2%
Covert's Adj. Web Halters.....35&2%

Hammers—

Handled Hammers—
Maydole's, list Dec. 1, '85.....25&10@35%
Buffalo Hammer Co.
Humason & Beckley
Atha Tool Co. } 50@50&10%
Fayette R. Plumb.
C. Hammond & Son.
Verree.....
Hartford, Nail Hammers...35&10@40&5%
Hartford, Machinists, &c.....50@50&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Nelson Tool Works.....40&10%
Warner & Nobles.....20@25
Peck, Stow & Wilcox.....40%
Sargent's.....33⅓&10%

Heavy Hammers and Sledges—
3 ℔ and under.....₱ ℔40¢ } 70@70&10%
3 to 5 ℔.....₱ ℔36¢
Over 5 ℔.....₱ ℔30¢
Wilkinson's Smiths.....10½¢@11¢₱ ℔

Handcuffs and Leg Irons—See Police Goods,

Handles—

Atkins' No. 1 Loop, ₱ pair, 28¢; No. 13¢; No. 6, 16¢; No. 2 and No. Reversible, 18¢.

Cross-Cut Saw Handles—
Boynton's Loop Saw Handles, 50¢....60%
Champion.....15%

Iron, Wrought or Cast—
Door or Thumb.

Nos....	0	1	2	3
Per doz....	$0.90	1.00	1.18	1.35

1.50 60&10&10%

Roggin's Latches.....₱ doz 30@35¢
Bronze Iron Drop Latches..₱ doz 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no Plate, $0.88 ..... net
Barn Door, ₱ doz $1.40..... 10&10%
Chest and Lifting..... 70%

Wood—

Saw and Plane.....40&10@40&10&5%
Hammer, Hatchet, Axe, Sledge, &c...40%
Brad Awl.....₱ gr $2.00
Hickory Firmer Chisel, ass'd. ₱ gr 4.50
Hickory Firmer Chisel, large. ₱ gr 5.00
Apple Firmer Chisel, ass'd...₱ gr 5.00
Apple Firmer Chisel, large...₱ gr 6.00
Socket Firmer Chisel, ass'd..₱ gr 3.00
Socket Framing Chisel, ass'd. ₱ gr 5.00
J. S. Smith & Co.'s Pat File..... 50
File, assorted..... ₱ gr ? 75 } 40@
Auger, assorted..... ₱ gr 5.00 } 40&10%
Auger, large..... ₱ gr 7.00 }
Pat. Auger, Ives'..... 30&10%
Pat. Auger, Douglass..... ₱ set $1.20
Pat. Auger, Swan's..... ₱ set $1.00
Hoe, Rake, Shovel, &c..... 50&10%

Hangers—

Barn Door, old patterns...60&10&10@70%
Barn Door, New England...60&10&10@70
Samson Steel Anti-Friction..... 55%
Orleans Steel..... 55%
Hamilton Wrought Wood Track..... 55%
U. S. Wood Track..... 65%
Champion..... 60&10%
Rider and Wooster, Medina Mfg. Co.'s list..... 70%
Climax Anti-Friction..... 60%
Climax Anti-Friction for Wood Track 55%
Zenith for Wood Track..... 55%
Reed's Steel Arm..... 50%
Challenge, Barn Door..... 50%
Sterling's Imp'ved (Anti-Friction)..65&10%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00..... 50&2%
Cheritree..... 50&10%
Kidder's..... 50&10@60%
The Boss..... 60&10%
Best Anti-Friction..... 60&10%
Duplex (Wood Track)..... 60&10&5%
Terry's Pat., ₱ doz pr. 4 in, $10.00; 5 in. $12.00..... 50&10%
Terry's Steel Anti-Friction Leader 50&10%
Terry's Steel Anti-Friction Ideal..50&10%
Cronk's Patent, Steel Covered..... 50@5%
Wood Track Iron Clad, ₱ ft. 10¢..... 50 &15@60%
Carrier Steel Anti-Friction..... 50&10%
Architect, ₱ set $6.00..... 20%
Eclipse..... 20&10%
Felix, ₱ set $4.50..... 20%
Richards'..... 30@30&10%
Lane's Standard..... 50&5@50&10%
Lane's New Standard..... 50@50&5%
Ball Bearing Door Hanger..20&10@25&10%
Warner's Pat.....20&10@20&10&10%
Stearns' Anti-Friction.20&10@20&10&10%
Stearns' Challenge.....25&10@25&10&10%
Faultless..... 40@40&5%
American, ₱ set $6.00..... 20&10%
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢..... 40%
Paragon, Nos. 1, 2 and 3..... 40&10%
Cincinnati..... 25&10%
Paragon, Nos. 5, 5½, 7 and 8..... 20&10%
Crescent..... 60@60&10%
Nickel Cast Iron..... 50%
Nickel, Malleable Iron and Steel..... 40%
Scranton Anti-Friction Single Strap 33½%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00..... 45%
Star..... 40&10@40&10&5%
May..... 50&5@50&10%
Barry, $6.00..... 40&10%

Harness Snaps—See Snaps.

Hatchets—

American Axe and Tool Co.
Blood's.....
Hunt's.....
Hurd's.....
Mann's.....
Peck's.....
Underhill's..... } 40 & 10 @ 50&5 %
Buffalo Hammer Co.....
Fayette R. Plumb.....
C. Hammond & Son.....
Kelly's.....
Sargent & Co.....
P., S. & W. Co.....
Ten Eyck Edge Tool Co.....
Collins..... 10%
Schulte, Lohoff & Co..... 50@50&5%

Hay and Straw Knives—See Knives.

Hinges—

Blind Hinges—

Parker..... 75&2%
Palmer..... 50&5&10%
Seymour..... 70&2%
Huffer..... 50
Clark's, Nos. 1, 3, 5, 40 and 50 75&10&5@80%
Clark's Mortise Gravity..... 50%
Sargent's, Nos. 1, 3, 5, 11, 13 75&10@55&10&5%
Sargent's, No. 12..... 77&10&10%
Reading's Gravity..... 75&10@75&10&5%
Shepard's
Noiseless..... 75&10%
Niagara..... 80%
Buffalo..... 80%
Clark's Genuine Pattern..... 80%
O. S., Lull & Porter..... 75&10%
Acme, Lull & Porter..... 75%
Queen City Reversible....70&10&5@75%
Clark's Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3..... 75&10&2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50..... 10%

Gate Hinges—

Western.....₱ doz $4.40, 60%
N. E.....₱ doz $7.00, 55%
N. E. Reversible.....₱ doz $5.20, 55&10%
Clark's, Nos. 1, 2, 3..... 60&10&5%
N. Y. State.....₱ doz $5.00, 55&10%
Automatic.....₱ doz $12.50, 50%
Common Sense.....₱ doz pair $4.50, 50%
Seymour's..... 45&10%
Shepard's..... 60&10&5%
Reed's Latch and Hinges. ₱ doz $12.00, 50%

Spring Hinges—

Union Spring and Blank Butts.....40%
Gear's Spring Hinge Co.'s list, March. 1886..... 20%

Acme..... 30%
J. S..... 25&10%
Empire and Crown..... 20%
Hero and Monarch..... 55%
American, Gem, and Star..... 20%
Oxford..... 20%
Barker's Double Acting..... 25%
Union Mfg. Co..... 25%
Bommer's..... 30%
Buckman's..... 15@20%
Chicago..... 30%
Wiles'..... 10%
Devore's..... 40%
Rex..... 40%
Royal..... 60%
Reliable..... 60%
Champion..... 60%
Bardsley's Patent..... 40%
Stearn's..... 50&10%

Wrought Iron Hinges

Strap and T..... 75&10%
Screw Hook and Strap..... { 6 to 12 in., ₱ D .4 2-10¢ / 14 to 20 in., ₱ D .3 7-10¢ / 22 to 36 in., ₱ D .3 2-10¢
Heavy Welded Hook..... { 6 to 12 in., ₱ D .4 2-10¢ / 14 to 20 in., ₱ D .3 7-10¢ / 22 to 36 in., ₱ D .3 2-10¢
Screw Hook and Eye..... { ⅛ in., ₱ doz $1.50 / ¼ in., ₱ doz $2.45 / ¾ in., ₱ doz $3.80 } 10%
Rolled Blind Hinges, Nos. 32 and 34 50&10%
Rolled Blind Hinges, Nos. 232 and 234 55&10%
Rolled Plate..... 70&10%
Rolled Raised..... 70&10%
Plate Hinges "Providence"..... { 8, 10 & 12 in., ₱ D .....5¢ / over 12 in., ₱ D .....4¢

Hoes—

Eye—

D. & H. Scovil..... 20%
Lane's Crescent Planters Pattern..45&5%
Lane's Razor Blade, Scovil Pattern...30%
Maynard, S. & O. Pat..... 45&5%
Sandusky Tool Co.,S.& O. Pat. } 50&10&5
Am. Axe and Tool Co., S. & O. Pat..... } @60%
Chattanooga Tool Co., S. & O. Pat..60& 5@60&10%
Grub..... 60&10%

Handled—

Garden, Mortar, &c..... 66⅔&70%
Planter's, Cotton, &c..... 66⅔&70%
Warren Hoe..... 60%
Magic.....₱ doz $4.00

Hog Rings and Ringers—See Rings and Ringers.

Hoisting Apparatus—See Machines, Hoisting.

Hollow-Ware—See Ware, Hollow.

Holders.

Bag.

Sprengle's Pat.....₱ doz $18.....60%

Bit.

Extension,
Barber's, ₱ doz $15.00.....40@40&10%
Ives, ₱ doz $20.00..... 60&5@60&10%
Diagonal..... ₱ doz $24.00, 40%
Angular..... ₱ doz $24.00, 40&5%

File and Tool—

Bals Pat.....₱ doz $4.00; 25%
Nicholson File Holders..... 20%
Dick's Tool Holder..... 20%

Hooks—

Cast Iron—

Bird Cage, Sargent's list..... } 60&10&10%
Bird Cage, Reading..... }
Clothes Line, Sargent's list.. }
Clothes Line, Reading list. 60&10@60&10&10%
Ceiling Sargent's list.....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. 55&10@60&10%
Coat and Hat, Reading..50&10@50&10&10%

Wrought Iron—

Cotton.....₱ doz $1.25
Cotton Pat. (N.Y. Mallet & Handle W'ks). 30%
Tassel and Picture (T. & S. Mfg. Co.)..50%
Wrought Staples, Hooks, &c. See Wrought Goods.

Wire—

Wire Coat and Hat, Gem, list April, 1886..... 50%
Wire Coat and Hat, Miles', list April, 1886..... 50%
Indestructible Coat and Hat..... 45%
Wire Coat and Hat, Standard..... 60%
Handy Hat and Coat..... 50&10%
Steady Ceiling Hooks..... 50&10%
Belt..... 80&80&10%
Atlas, Coat and Hat..... 60%

Miscellaneous.

Grass, No. 2, $2.00; No. 3, $2.25; No. 4, $2.50
Nolin's Grass.....₱ doz $2.25
Bush..... 55@60%
Whiffletree—Patent..... 55%
Hooks and Eyes—Malleable Iron. 70@70&10%
Hooks and Eyes—Brass.....60&10&10%
Fish Hooks, American..... 50%
Bench Hooks ..... See Bench Stops.

Horse Nails—See Nails, Horse.

Horse Shoes—See Shoes, Horse.

Hose, Rubber—

Competition..... 75@75&5%
Standard..... 60&10&5@60&10&10%
Extra..... 50&10@60%
N. Y. B. & P. Co., Para..... 25&5%
N. Y. B. & P. Co., Extra..... 40@40&5%
N. Y. B. & P. Co., Dundee... 50&10 @ 60%

Huskers—

Blair's Adjustable.....₱ gr $8.00
Blair's Adjustable Clipper. ₱ gr 7.00
Hubbard's Solid Steel.....₱ gr 4.50

Indurated Fiber-Ware—See Ware, Indurated Fiber.—

Irons.

Sad—

From 4 to 10, at factory ...₱ 100 ℔, $2.30@$2.40
Self-Heating.....₱ doz $9.00 net
Self-Heating, Tailors'....₱ doz $18.00 net
Mrs. Pott's Irons..... 50&5%
Enterprise Star Irons..... 50&5%
Cold Handle Sad Irons..... 50&5%
Ideal Irons new list.50&10@50 & 10&10%
Salamander Irons..... 25%
B. B. Sad Irons, ₱ ℔..... 3 @3½¢
Combined Fluter and Sad Iron, ₱ doz, $15.00..... 15%
Fox Reversible, Self-Fluter ₱ doz $24.00
Chinese Laundry (N.E. Butt Co.) 8½¢, 15%
New England..... 8¢, 15%
Mahony's Troy Pol. Irons..... 25%
Sensible..... 20@20&5%
National Self-Heating..... 30%

Soldering—

Soldering Coppers.....₱ ℔ 22 @ 23¢
Covert's Adjustable, list Jan. 1, 1886. 35&2%

Irons, Pinking, per doz., 65¢.

Jack Screws—See Screws.

Jacks, Wagon.

Daisy..... 33⅓%
Victor..... 33⅓%

Kettles— Spun. Stamped.
Brass, 7 to 17 in., ₱ ℔.... 24¢ 22 ¢
Brass larger than 17 in., ₱ ℔..... 26¢ 24½¢
Enameled and Tea—See Hollow Ware.

Keys—

Lock Asso'n list Dec. 30, 1886...50&10@ 60&5%
Eagle, Cabinet, &c..... 33⅓&2%
Hotchkiss' Brass Blanks..... 40%
Hotchkiss, Copper and Tinned..... 40%
Hotchkiss' Pad. and Cab..... 35%
Ratchet Bed Keys.....₱ doz $4.00, 15%
Wollensak Tinned..... 50&10%

Knife Sharpeners—See Sharpeners, Knife.

Knives.

Butcher, Shoe, &c—

Wilson's Butcher Knives, list Oct. 1, 1890..... 25%
Ames' Butcher Knives..... 25%
Foster Bros.' Butcher, &c..... 40%
Nichols' Butcher Knives..... 40&10%
Ames' Shoe Knives..... 20@25%
Ames' Bread Knives. ₱ doz $1.50, 15@20%
Moran's Shoe and Bread..... 20%
Hay and Straw..... See Hay Knives.
Table and Pocket..... See Cutlery.
Corn, Auburn Mfg. Co. Western Pat., $2.00
Corn, Auburn Mfg. Co. Crescent..... $3.50

Corn—

Bradley's..... 10%
Wadsworth's..... 25%

Drawing—

Witherby.....
P. S. & W.....
Mix .....
New Haven..... ..75@ 75&10 %
Merrill.....
Douglas.....
Watrous..... 60&10@60&10&5%
L. & I. J. White..... 75@75&5%
Bradley's..... 15&10@25%
Adjustable Handle..... 20&5%
Wilkinson's Folding..... 25@25&5%

Hay and Straw—

Lightning..Mfrs'. price ₱ doz $18.00, 25% But jobbers cut this price freely, often selling at $8 @ $8.50.
Wadsworth's..... 25&5%
Carter's Needle.....₱ doz $11.00@$11.50
Heath's.....₱ doz $13.00@13.50
Auburn Hay, Com. and Spear Point..50%
Auburn, Straw..... 40%
Nolin's Hay.....₱ doz. $7.00 @ $8.00

Mincing.

Am. (2d quality), ₱ gr., 1 blade, $7; 2 blades, $12; 3 blades, $18..... net
Lothrop's..... 20&10%
Smith's, ₱ doz, Single, $2.00: Double, $3 40@45¢
Knapp & Cowles..... 50&10@60%
Buffalo Adjustable..₱ doz $3.00 25%
Buffalo Double Adj'table.₱ doz $3.00 25%

Knobs—

Door Mineral..... 60@65%
Door Por. Jap'd..... 70@75%
Door Por. Nickel..... $2.00@2.25
Door Por. Plated, Nickel..... $2.00@2.25
Drawer, Porcelain.....60&10@60&10&10%
Hemacite Door Knobs..... 40&10&5%
Yale & Towne Wood, list Dec., 1885...40%
Furniture Plain.....75¢ gro inch, 10%
Furniture, Wood Screws..... 25&10%
Base, Rubber Tip..... 70&10&5%
Picture, Judd's.....60&10&10@70%
Picture, Sargent's..... 70&10%
Picture, Hemacite..... 35&5%
Shutter, Porcelain..... 65&10%
Carriage, Jap.....₱ gro 80¢, 60&10%
Bardsley's Wood Door, Shutter, &c..40%

Ladles.—
Melting, Sargent's..... 55&10%
Melting, Reading..... 35&10%
Melting, Monroe's Pat...₱ doz $4.00, 40%
Melting, P. S. & W..... 35&10@40%
Melting, Warner's..... 30%

Lanterns—

Tubular—

Plain with Guards, ₱ doz.....$4.00@4.25
Lift Wire, with Guards.....$4.50@4.75
Square Plain, with Guards....$4.00@4.25
Sq. Lift Wire, with Guards....$4.25@4.50
Without Guards, 25¢ ₱ doz less.

Miscellaneous.

Police, Small, $6.00; Medium, $7.25; Large, $9.75..... 20@25%

Lawn Mowers—See Mowers, Lawn.

Leaders, Cattle.

Humason, Beckley & Co.'s..... 70%
Sargent's..... 66⅔&10%
Hotchkiss..... 30%
Peck, Stow & W. Co..... 60&10%

Lemon Squeezers—See Squeezers, Lemon.

Lifters, Transom.

Wollensak's:
Class 3 and 4, Bronzed Iron..... 50%
Class 3 and 4, Bronze Metal..... 25%
Class 3 and 4, Brass..... 35%
Skylight Lifters..... 35%
Crown, Eagle and Shield..... 50%
Reiher's, list Sept. 1, 1890.
Bronzed Iron Rods..... 50&10&10&2%
Brass, Real Bronze or Nickel Plate 30%
Excelsior..... 50&10&2%
Shaw's..... 50&10%
Payson's:
Universal..... 60%
Solid Grip..... 60%
Imperial..... 50&10%

Lines—

Cotton and Linen Fish, Draper's..... 50%
Draper's Chalk..... 60%
Draper's Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25..... 25%
Cotton Chalk..... 55%
Samson, Cotton, No. 4, $2; No. 4½, $2.50; 10%
Silver Lake, Braided, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₱ gro..... 25%
Mason's Linen, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50.
Mason's Colored Cotton..... 45%
Wire Clothes.. Nos. 12 19 20
100 ft. $4 00 $3 50 $3.00
Ventilator Cord, Samson Braided, White or Drab Cotton..₱ doz $7.50, 20%

Locks, &c.—

Cabinet—

Eagle, Gaylord Parker and Corbin...} List March, '84, rev Jan.1,'85..33⅓&2%
Deltz, Nos. 36 to 39..... 40%
Deltz, Nos. 51 to 63..... 40&10%
Deltz, Nos. 86 to 96..... 30%
Stoddard Lock Co..... 30&33⅓%
"Champion" Night Latches..... 40%
Barnes Mfg. Co..... 40@40&10%
Eagle and Corbin Trunk..... 25&2%
"Champion" Cab. and Combin...33⅓%
Yale..... net prices
Romer's..... 25%

Door Locks, Latches, &c.

R. & E. Mfg. Co. ,list Mar.20, 1889..... } 65&10@70
Mallory, Wheeler & Co., list July, '88..... } Much lower net
Sargent & Co.,list Aug.1, '88 } prices often
Reading Hardware Co., list Feb. 2, '88..... } made.
Brittan, Graham & Mathes, list Jan. 1890..... 60&10&10%
Perkins' Burglar Proof..... 60&25%
Plate..... 33⅓&2%
Barnes Mfg. Co..... 40@40&10%
Yale..... net prices
Deltz Flat Key..... 30%
L. & C. Round Key Latches..... 30&10%
L. & C. Flat Key Latches..... 33⅓&10%
Romer's Night Latches..... 15%
Shepardson or U. S..... 35%
Seed's N. Y. Hasp Lock..... 25%

Padlocks—

List Dec. 23, '84..... 75@75&10%
Brittan, Graham & Mathes..... 75&10%
Yale Lock Mfg. Co.'s..... net prices
Eagle..... 25&2%
Eureka, Eagle Lock Co..... 40&2%
Romer's, Nos. 0 to 91..... 30%
Romer's Scandinavian, &c., Nos. 100 to 505..15%
A. E. Deltz..... 40%
Champon Padlocks..... 40%
Hotchkiss..... 30%
Star..... 45%
Horseshoe.....₱ doz, $9. 40@40&10%
Barnes Mfg. Co..... 40@40&10%
Nock's..... 30%
Brown's Pat..... 25%
Scandinavian..... 90@90&10%
E. T. Fraim's Keystone Scandavian:
Nos. 119, 120, 130 and 140..... 90&10%
Other Nos..... 65%
Ames Sword Co. up to No. 150..... 40%
Ames Sword Co. above No. 150..... 50%
Slaymaker Barry & Co.
No. 41 line..... 45&5%
No. 31 line..... 60&5%
No. 21 line..... 75&5%

Sash, &c.

Clark's, No. 1, $10; No. 2, $8 ₱ gr.. 33⅓%
Ferguson's..... 33⅓%
Morris and Triumph, list Aug. 16, 1886, 60&2%
Victor..... 60&10&2%
Walker's..... 10%
Attwell Mfg. Co..... 25&33⅓%
Reading..... 66⅔&10@66⅔&10&10%
Hammond's Window Springs..... 40%
Common Sense, Jap'd, Cop'd and Br'zed.....₱ gr $4.00
Common Sense, Nickel Plated ₱ gr $10.00
Universal..... 30%
Kempshall's Gravity..... 60%
Kempshall's Model..... 60@60&10%
Corbin's Daisy, list Feb. 15, 1886.... 70%
Payson's Perfect..... 60@60&10%
Huguinin's Sash Balances..... 25&5&2%
Huguinin's New Sash Locks..... 25&5&2%
Stoddard "Practical"..... 10%
Ives' Patent..... 60&10@60&10&5%
Liesche's, Nos. 100 and 110, ₱ gr $8; 105, $10.00..... 20&10%
Davis, Bronze, Barnes Mfg. Co..... 50%
Champion Safety, list March 1, 1888 55@55&5%
Security..... 70%
Buckeye.....₱ gro $4.80

Lumber Tools—See Tools, Lumber

Lustre—

Four-ounce Bottles....₱ doz, $1.75; ₱ gross..... $17.00

Machines.

Boring—

	Without Augers.	Upright.	Angular.	
Douglas	$5.50	$6.75		50%
Snell's, Rice's Pat.	5.50	6.75	4.40	10&10%
Jennings	5.50	6.75	4.45	45&10%
Other Machines..	2.35	2.75		
Phillips' Patent with Augers ..	7.00	7.50		

Fluting.

Knox, 4½-inch Rolls.....$3.25 each } 35%
Knox, 6-inch Rolls.....$3.60 each }
Eagle, 3½-inch Roll, $2.15..... 35%
Eagle, 5½-inch Roll, $2.85..... 35%
Crown, 4½ in., $3.50; 6 in., $4.00; 8 in., $6.50 each..... 35%
Crown Jewel, 6 in .....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each..... 35%
Domestic Fluter.....each, $1.50
Geneva Hand Fluter, White Metal ₱ doz $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; $12.50; 3, $10.00..... 30%
Shepard Hand Fluter, No. 85 ₱ doz 15.80..... 40%

Shepard Hand Fluter, No. 110 ₱ doz 40%
$11.00.
Shepard Hand Fluter, No. 95 ₱ doz 40%
$8.00.
Clark's Hand Fluter, ₱ doz $15.00..... 35%
Combined Fluter and Sad Iron, ₱ doz $15.00 ..... 30%
₱ doz $10.00 ..... 10%
Buffalo .....

Hoisting—
Moore's Hand Hoist, with Lock Brake 20%
Moore's Differential Pulley Block.. 40%
Energy Mfg. Co's 25%

Washing—
Anthony Wayne, ₱ doz No. 1, $51; No. 2, $45; No. 3, $42.

Mallets.

Hickory ..... 20&10&20&10&10%
Lignumvitæ ..... 20&10&20&10&10%
B. & L. Block Co., Hickory & L. V. ..... 30&30&10%

Mattocks. Regular list ..... 60&10%

Measures—
Standard Fiberware, No. 1, peck, ₱ dozen, $4; ½-peck, $3.50.

Meat Cutters—See Cutters, Meat.

Mills.

Coffee—
Box and Side, List Jan. 1, 1888 .... 60&2%
American, Enterprise Mfg Co. 20&10&30%
The Swift, Lane Bros. ..... 20&10%

Mincing Knives — See Knives, Mincing.

Molasses Gates—See Gates, Molasses.

Money Drawers — See Drawers, Money.

Mowers, Lawn.

Leading makers ..... 60&60&10&5%
Other makers ..... 60&10&5&60&10&10%
Pennsylvania 60%
Continental 60%
New Model ..... 60&10&5%
New Quaker City ..... 60&10&5%
Great American ..... 60&10&5%

Muzzles—
Safety ..... ₱ doz, $3.00, 25 %

Nails.

Cut and Wire. See Trade Report.
Wire Nails, Papered.
Association list, July 15,'89..75@75&5%
Tack Mfrs.' list ..... 60&10&10%
Wire Nails, Standard Penny.
Card June 1, '89, base ..... $2.40 @ $2.50

Horse—See Trade Report.

Nos.	6	7	8	9	10
Ausable	.28¢	26¢	25¢	24¢	23¢.

40&5&2%

Clinton, Fin..	19¢	17¢	16¢	15¢	14¢ 30%
Essex	.28¢	26¢	25¢	24¢	23¢.

25&10@25&10&10%

Lyra	19¢	17¢	16¢	15¢	14¢ ..... 30 %
Snowden	19¢	17¢	16¢	15¢	14¢ ..... 30 %
Putnam	.23¢	21¢	20¢	19¢	18¢.

1000 ℔ in year 15%

Vulcan	.23¢	21¢	20¢	19¢	18¢..12½&5%
Northwest'n.	25¢	23¢	22¢	21¢	20¢.

25@25&5%

Globe	.23¢	21¢	20¢	19¢	18¢..25&10%
Boston	.23¢	21¢	20¢	19¢	18¢.

20&5&5&2½%

A. C	.25¢	23¢	22¢	21¢	21¢.

25&10@33⅓&5%

C. B.-K	.25¢	23¢	22¢	21¢	20¢.

25&10@33⅓&5%

Maud S	.25¢	23¢	22¢	21¢	21¢.

40&10&5&2 %

Champlain	.23¢	6d	25¢	24¢	23¢.

25&10@10%

New Haven	.23	26¢	25¢	24¢	23¢.

25&10@25&10&10%

Saranac	.23¢	21¢	20¢	19¢	18¢..30&10%
Champion	.25¢	23¢	22¢	21¢	20¢.

10&10&10%

Capewell	.23¢	26¢	5¢	24¢	23¢.

35&5@35&10%

Star	.23¢	21¢	20	19¢	18¢.

10&10@10&12½%

Anchor	.23¢	21¢	20¢	19¢	18¢ 35%
Western	.23¢	21¢	20¢	19¢	18¢..40&10%
Empire Bronzed					14 ₱ ℔.

Picture—
Brass Head, Sargent's list ..... 50&10&10%
Brass Head, Combination list ..... 50&10%
Porcelain Head, Sargent's list .50&10&10%
Porcelain Head, Combination list..40&10%
Niles' Patent 40%

Nail Pullers.—See Pullers, Nail.

Nail Sets.—See Sets, Nail.

Nut Crackers.—See Crackers, Nut.

Nuts—
Nuts, off list Dec. 18,1889: Square. Hex.
Hot Pressed ..... 5.45¢ 6.00¢
Cold Punched ..... 5.00¢ 4.90¢
In lots less than 100 ℔, ₱ ℔, add ½¢; 1-℔ boxes, add 1¢ to list.

Oakum—

Government ..... ₱ ℔ 7@7½¢
U. S. Navy ..... ₱ ℔ @6½¢
Navy ..... ₱ ℔ 5½@5½¢

Oilers—
Zinc and Tin ..... 65&10&70%
Brass and Copper ..... 50&10&50&10&5%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₱ doz. 10&10&5%
Malleable, Hammers, Old Pattern, same list 40%
Prior's Pat. or "Paragon" Zinc, 60&10&10%
Prior's Pat. or "Paragon" Brass 50%
Olmstead's Tin and Zinc 60%
Olmstead's Brass and Copper 50%
Broughton's Zinc 60%
Broughton's Brass 50%
Gem P. D. & Co. ..... ₱ gro. $2
Steel, Draper and Williams 50%

Openers, Can.
Messenger's Comet ..... ₱ doz $3.00, 25%
American ..... ₱ gross $3.0.
Duplex ..... doz 25¢, 15@20%
Lyman's ..... ₱ doz $3.75, 20%
No. 4 French ..... ₱ doz $2.25, 55@60%
No. 5, Iron Handle ..... ₱ gr $6.00, 45&50%
Eureka ..... ₱ doz $2.50, 10%
Sardine Scissors ..... ₱ doz $2 75@3.0.
Star ..... ₱ doz $2.7
Sprague, No. 1, $2.00 2, $2.25; 3, $2.50 50&10&10%
Excelsior, No 1, $2.50; No. 2, $1.50 ..40%
World's Best, ₱ gross, No. 1, $12.00 No. 2, $24.00; No. 3, $36.00..... 5%&10%
Universal, ₱ doz $3.00..... 5%
Domestic, ₱ doz $2.50..... 50%
Champion ₱ doz $2.00..... 5%

Packing, Steam—

Rubber—
Standard ..... 60&5@65%
Extra ..... 50@50&5%
N. Y. B. & P. Co., Standard..40&10@50%
N. Y. B. & P. Co., Empire..... 60&5@65%
N. Y. B. & P. Co., Salamander. ₱ ℔ 65¢, 10@15%
Jenkins' Standard. ₱ ℔ 80¢,..25@25&5%

Miscellaneous—
American Packing ..... 10¢@11¢ ₱ ℔
Russia Packing ..... 14¢ ₱ ℔
Italian Packing ..... 13¢@14¢ ₱ ℔
Cotton Packing ..... 15¢@17¢ ₱ ℔
Jute ..... 7¢@8¢ ₱ ℔

Padlocks—See Locks.

Pails.

Galvanized Iron—

	Quarts	10	12	14
Hill's Light Weight, ₱ doz.		$2.75	3.00	3.25
Hill's Heavy Weight, ₱ dz.		3.00	3.25	3.75
Helwig's		2.50	2.75	3.00
Sidney Shepard & Co.		2.35	2.85	3.05
Iron Clad		2.50	2.75	3.00
Fire Buckets		2.75	3.25	3.50

Buckets, see Well Buckets.

Indurated Fibre Ware—25%
Star Pails, 12 qt ..... ₱ doz $6.00
Fire, Stable and Milk, 14 qt .. ₱ doz $7.80

Standard Fibre Ware—

	Plain.	Decr'd
Water Pails, 12 qt., per doz.	$4.00	$4.50
Dairy Pails, 14 qt., per doz.	4.50	5.00
Fire Pails, No.1, 12 qt. per doz	4.50	
Fire Pails, No.2, 14 qt. per doz	5.00	
Sugar Pails	6.00	6.50
Horse Pails	5.00	
Buggy Pails	4.00	
Slop Jars (bal. trap)	8.00	9.00
Chamber Pails, 14-qt	6.50	7.50

Pans.

Dripping.
Small sizes ..... ₱ ℔ 6¼¢
Large sizes ..... ₱ ℔ 5½¢
Silver & Co. (Covered) 40%

Fry—
Standard List:

No.	0	1	2	3	4
₱ doz.	$3.00	$3.75	$4.25	$4.75	$5.25
No.		5	6	7	8
₱ doz.		$6.00	$7.00	$8.00	$9.00

Polished, regular goods ..... 70&10%
Acme Fry Pans ..... 60&10%

Paper and Cloth—

Sand and Emery—
List April 19, 1886 ..... 50@50&10%
Sibley's Emery and Crocus Cloth 30%

Parers.

Apple.

Advance	₱ doz $4.75
Baldwin	₱ doz 5.25
Bonanza	each 5.00
Champion	₱ doz 7.25
Daisy	₱ doz 4.00
Dandy	each 7.50
Eureka, 1888	each 16.00
Family Bay State	₱ doz 12.00
Favorite	₱ doz 5.00
Gem	₱ doz 5.25
Gold Medal	₱ doz 4.00
Ideal	₱ doz 4.00
Improved Bay State..	₱ doz 27.00 @ 30.00
Little Star	₱ doz 4.50
Monarch	₱ doz 13.50
New Lightning	₱ doz 5.50
Oriole	₱ doz 4.00
Penn	₱ doz 4.00
Perfection	₱ doz 4.00
Pomona	₱ doz 4.00
Rocking Table	₱ doz 6.00
Turntable	₱ doz 4.50
Victor	₱ doz 13.50
Waverly	₱ doz 4.00
White Mountain	₱ doz 4.00
72	₱ doz 4.25
76	₱ doz 5.75
78	₱ doz. 6.50

Potato—

White Mountain	₱ doz $4.50
Antrim Combination	₱ doz $5.50
Hoosier	₱ doz $13.50
Saratoga	₱ doz $5.50

Pencils—
Faber's Carpenters' ..... high list 50%
Faber's Round Gilt ..... ₱ gro $5.25
Dixon's Lead ..... ₱ gro $4.50
Dixon's Lumber ..... ₱ gro $6.75
Dixon's Carpenters' ..... 40&10%

Picks—
Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00 ..... 60&10%

Picture Nails.—See Nails, Picture.

Pinking Irons.—See Irons, Pinking.

Pins.

Bow—
Humason, Beckley & Co.'s ..... 60&10%
Sargent & Co's....$17 and $18..... 60&10%
Peck, Stow & W Co... 50&10&50&10&5%

Curtain—
Silvered Glass ..... net
White Enamel ..... net

Escutcheon.
Iron, list Nov. 11, 1885..50&10@50&10&5%
Brass ..... 60@60&5%

Pipe, Wrought Iron—
List September 18, 1889.

¼ and under, Plain	47½%
¼ and under, Galvanized	40%
¼ and over, Plain	60%
¼ and over, Galvanized	47½%

Boiler Tubes, Iron.

¼ and under	45%
2-inch and larger	50%

Planes and Plane Irons—

Wood Planes—
Molding ..... 35&2%
Bench, First Quality ..... 50&2%
Bench, Second Quality ..... 55&2%
Bailey's (Stanley R. & L. Co.). ...40&10%

Iron Planes—
Bailey's (Stanley R. & L. Co.). 40&10@40&10&10%
Miscellaneous Planes (Stanley R. & L. Co.) ..... 20&10@20&10&10%
Victor Planes (Stanley R. & L. Co.). ..... 20&10@20&10&10%
Steer's Iron Planes ..... 35@35&10%
Merrien Mal. Iron Co.'s ..... 40@40&10%
Davis's Iron Planes ..... 40@40&10%
Birmingham Plane Co. ..... 50@50&10%
Gage Tool Co.'s Self-Setting...20&10&10%
Chaplin's Iron Planes ..... 40@40&10%
Sargent's ..... 30&10@30&10&10%
Standard Tool Co. ..... 50@50&5%

Plane Irons—
Butcher's ..... $5.00@$5.25 to 2
Buck Bros 30%
Auburn "Thistle" Ohio Sandusky } ..... 35&2%
S. & I. J. White 25%

Plates.
Felloe ..... ₱ ℔ 6¢@6¼¢

Pliers and Nippers—
Button's Patent ..... 50@50&10%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in. $21.00 ₱ doz ..... 20&10@33⅓%
Humason & Beckley Mfg. Co. .50@50&10%
Gas Pliers 60%
Gas Pliers, Custar's Nickel Plated..60&5%
Eureka Pliers and Nippers 40%
Russell's Parallel 25%
P. S. & W. Cast Steel 50%
P. S. & W. Tinners' Cutting Nippers, add 6% dis 10%
Carew's Pat. Wire Cutters 20%
Morrill's Parallel, ₱ doz, $12.00.....30&5%
Cronk's 8 in., $15.00; 10 in. $21.00, 40@40&5%

Plumbs and Levels—
Regular List ..... 70&10@70&10&10%
Disston's 50%
Pocket Levels ..... 70&10@70&10&10%
Davis Iron Levels 30%
Davis' Inclinometers ..... 10&10%

Poachers.

Egg.
Buffalo Steam Egg Poachers, ₱ doz, No. 1, $6.00; No. 2, $9.00 ..... 25%
Silver & Co., 6-Ring..₱ doz $4; 3-Ring $2

Pokes, Animal—
Bishop's I. X. L. ..... ₱ doz $6.00
Bishop's O. K. ..... ₱ doz $5.25
Bishop's Pioneer ..... ₱ doz $3.75
Bishop's American ..... ₱ doz $2.75
Eagle, Double Stale ..... ₱ doz $5.75
Eagle, Single Stale ..... ₱ doz $3.75
Buckeye, Single Stale ..... ₱ doz $2.75

Police Goods.
R. I. Tool Co., Handcuffs, $15.00 ₱ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₱ doz 10%
Tower's 25%
Daley's Improved Handcuffs: 2 Hands, Polished, ₱ doz $48.00; Nickeled, $57.00: 3 Hands, Polished, ₱ doz $72.00; Nickeled, $84.00 ..... 25%
J. P. Lovell's Police Goods 25%

Polish, Metal.
Prestoline 30%
Prestoline Paste 33⅓%
Gaston's Silver Compound 33⅓%

Polish, Stove.
Joseph Dixon's ..... ₱ gro $6.00, 10%
Gem ..... ₱ gro $4.50, 10%
Gold Medal ..... ₱ gro $6.00, 25%
Mirror ..... ₱ pro $6.00, —%
Lustro ..... ₱ gro $4.75
Ruby ..... ₱ gro $3.75
Rising Sun, 5 gro lots ..... ₱ gro $5.50
Dixon's Plumbago ..... ₱ ℔ 8¢
Boynton's Noon Day, ₱ gro 13.00
Parlor Pride Stove Enamel.. ₱ gro
Yates' Liquid, 2 3 5 10 gal.... ₱ gal ....$0.80 .70 .60 .50
Yates Standard Paste Polish, 10-℔ cans. ₱ ℔ 12½¢
Jet Black ..... ₱ gro $3.50
Japanese ..... ₱ gro $3.50
Fireside ..... ₱ gro $2.50
Diamond O. K. Enamel..... ₱ gro $19.00
Bonnell's Liquid Stove Polish. ₱ gro $9.00
Bonnell's Paste Stove Polish.. ₱ gro $6.00
Black Eagle Benzine Paste, 5 and 10 ℔ cans ..... 12½¢
Black Jack Water Paste, 5 and 10 ℔ cans ..... 12½¢
Nickel Plate Paste ..... ₱ gro $6.00

Poppers, Corn—
Round or Square, 1 qt.. ₱ gr $10.00@10.50
Round or Square, 1½ qt.. ₱ gr $15@15.50
Round or Square, 2 qt.. ₱ gr $18.50@19.00

Post Hole and Tree Augers and Diggers—See Diggers, Post Hole, &c.

Potato Parers—See Parers, Potato.

Pots.

Glue—
Tinned 40%
Enameled ..... 40&5%
Family, Howe's "Eureka" 40%
Family, L. F. C.'s "Handy" 50%

Presses.

Fruit and Jelly—
Enterprise Mfg. Co. ..... 20&10@30%
Henis ..... ₱ doz $3.50
Shepard's Queen City ..... ₱ doz $2.75
Silver & Co. ..... ₱ doz $2.75

Pruning Hooks and Shears.—See Shears.

Pullers.

Nail.
Curtiss Hammer ..... ₱ doz $9.00
Giant, No. 1 ..... ₱ doz. $13.00, 10%
Giant, No. 2 ..... ₱ doz, $15.00, 10%
Pelican ..... ₱ doz, $9.00, 25%

Pulleys—
Hot House, Awning, &c. ..... 60&10%
Japanned Screw ..... 60&10%
Brass Screw ..... 60&10%
Japanned Side ..... 66⅔&10%
Japanned Clothes Line ..... 60&10%
Empire Sash Pulley ..... 55@60%
Moore's Sash, Anti-Friction 50%
Hay Fork, Solid Eye, $4.00: Swivel, $4.50 ..... 50&10&50&10&5%
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70 ..... 50%
Hay Fork, "F" Common and Pat. Bushed 20%
Hay Fork, Tarbox Pat. Iron 20%
Hay Fork, Reed's Self-Lubricating ...60%
Shade Rack 45%
Tackle Blocks ..... See Blocks
Moore's Anti-Friction 5 in. Wheel, ₱ doz $12.00. ....40%

Pumps—
Cistern, Best Makers ..... 60&60&10%
Pitcher Spout, Best Makers.....67½@70%
Pitcher Spout, Cheaper Goods. 70@70&5%

Punches—
Saddlers' or Drive, good, ₱ doz....60@65%
Bemis & Call Co.'s Cast Steel Drive..50&5%
Bemis & Call Co's Springfield Socket.50&5%
Spring, good quality.... ₱ doz $2.50@2.60
Spring, Leach's Pat. 15%
Bemis & Call Co.'s Spring and Check ..40%
Solid Tinners', P.S. & W. Co.. ₱ doz $1.44, 55%
Tin'rs' Hollow Punches P.S. & W. Co. 20&2%
Rice Hand Punches 15%
Avery's Revolving 40%
Avery's Saw-Set and Punch. See Saw Sets.

Rail—

Sliding Door, Wr't Brass, ₱ ℔ 35¢..... 15%
Sliding Door, Bronzed Wr't Iron.. ₱ ft. 7¢
Sliding Door, Iron, Painted, ₱ foot 4¢, 40%
Barn Door Light. In. ¼ ⅝
Per 100 feet..... $2.00 2.50 3.10, 10%
B. D. for N. E. Hangers—

	Small.	Med.	Large.
Per 100 feet....	$2.15	2.70	3.25..net

Terry's Steel Rail, ₱ foot ..... 4½¢
Victor Track Rail, 7¢ ₱ foot ..... 50&2%
Carrier Steel Rail, ₱ foot ..... 4½¢
Moore's Wrought Iron 25%

Rakes—
Cast Steel, Association goods...66⅔@70%
Cast Steel, outside goods 60&10&10@70&5%
Malleable ..... 70@70&5%
Gibbs Lawn Rake..... $12.00, 50&15
Canton Lawn Rake..... $9.00, 50&10
Ft. Madison Prize Bow Brace and Peerless 65%
Fort Madison Steel Tooth Lawn Rake, $6.00..... 25%

Razors—
J. R. Torrey Razor Co 20%
Wostenholme and Butcher, $10.00 to £. 10%
Jordan's AAA1, list Nov. 1, 1889..... 50%
Jordan's Old Faithful, list Nov. 1, '89. 50%
Electric ..... List net

Razor Strops—See Strops, Razor.

Rings and Ringers.

Bull Rings—
Union Nut Co. 55%
Sargent's ..... 66⅔&10@70&5%
Hotchkiss' low list 30%
Humason, Beckley & Co.'s..... 70&10%
Peck, Stow & W. Co's..50&10@50&10&10%
Elirich Hdw. Co., White Metal, low list. 50@50&10%

Hog—
Top of the Hill Ringers..... ₱ doz $2.00
Top of the Hill Rings..... ₱ doz $1.25
Hill's Improved Ringers. ... ₱ doz $1.25
Hill's Old Style Ringers..... ₱ doz $1.12½
Hill's Tongs ..... ₱ doz $3.00
Hill's Rings ..... ₱ doz bxs $1.00
Perfect Rings ..... ₱ doz bxs $1.50
Perfect Ringers ..... ₱ doz $2.15@$2.25
Blair's Hog Ringers ..... ₱ doz $2.00
Blair's Hog Rings ..... ₱ doz 90¢@$1.00
Champion Ringers ..... ₱ doz $2.00
Champion Rings, Double..... ₱ doz $2.25
Brown's Ringers ..... ₱ doz $2.00
Brown's Rings ..... ₱ doz $1.15@1.25

Rivets and Burrs—
Iron, list Nov. 17, '87 ..... 40%
Copper ..... 50&10%
Coppered Iron, Bettina Brand..... 40%

Rivet Sets—See Sets.

Rods—
Stair, Brass ..... 25&2%
Stair, Black Walnut .. .. ₱ doz 40¢

Rollers—
Barn Door, Sargent's list ..... 60&10&10%
Acme Moore's Anti-Friction 55%
Union Barn Door Roller 70%

Rope—*See Trade Report.*

Manila	¼ in. and larger	₱ ℔	14¢
Manila	⅜ in.	₱ ℔	14½¢
Manila	⅛ and 5-16 in.	₱ ℔	15¼¢
Manila	Tarred Rope	₱ ℔	13¼¢
Manila,	Hay Rope	₱ ℔	13¾¢
Sisal	½ inch and larger	₱ ℔	9 ¢
Sisal	⅜ in.	₱ ℔	9½¢
Sisal	¼ and 5-16 in.	₱ ℔	9¾¢
Sisal,	Hay Rope	₱ ℔	9 ¢
Sisal,	Tarred Rope	₱ ℔	8½¢
Sisal,	Medium Lathe Yarn	₱ ℔	8 ¢
New Zealand	½ in. and larger	₱ ℔	9 ¢
New Zealand	⅜ inch,	₱ ℔	9½¢
New Zealand	¼ and 5-16 inch,	₱ ℔	10¾¢
New Zealand,	Hay Rope	₱ ℔	9 ¢
New Zealand,	Tarred Rope	₱ ℔	8¾¢

Note.—Manufacturers' prices on above ¾¢ ₱ ℔ less.

Cotton Rope ..... ₱ ℔ 15@18¢ net
Jute Rope ..... ₱ ℔ 6½@6¾¢

Wire—
List May 1, 1886.
Iron ..... 32½&2½%
Iron, Galvanized ..... 40&2½%
Cast Steel ..... 40&2½%

Rules—
Boxwood ..... 80&10&10@80&10&10&10%
Ivory ..... 50&50&10%
Starrett's Rules and Straight Edges, Steel ..... 25&10%

Sad Irons—See Irons, Sad.

Sand and Emery Paper and Cloth—See Paper and Cloth, Sand and Emery.

Sash Cord—See Cord, Sash.
Sash Locks—See Locks, Sash.
Sash Weights—See Weights, Sash.
Sausage Stuffers or Fillers—See Stuffers or Fillers, Sausage.

Saws—
Disston's Circular 45%
Disston's Cross Cuts 45%
Disston's Hand 20%
Woodrough & McParlin.
Hand, Panel and Rip 25%
Narrow Champion Cross Cuts with Handles, ₱ foot ..... 20¢
Champion Thin Back Cross Cuts, ₱ foot ..... 28¢
Champion Extra Thin Back Cross Cuts, ₱ foot ..... 31¢
One Man Champion Cross Cuts, ₱ foot ..... 40¢
Wheeler, Madden & Clemson Mfg. Co.
Hand, Panel and Rip 30%
Narrow Champion Cross Cuts with Handles, ₱ foot ..... 20¢
Champion Thin Back Cross Cuts, ₱ foot ..... 28¢
Champion Extra Thin Back Cross Cuts, ₱ foot ..... 31¢
One Man Champion Cross Cuts, ₱ ft. 40¢

Atkins' Circular Shingle and Heading ..... dis 50%
Atkins' Silver Steel Diamond X Cuts ..... ₩ foot 70¢
Atkins' Special Steel Dexter X Cuts ..... ₩ foot 50¢
Atkins' Special Steel Diamond X Cuts ..... ₩ foot 32¢
Atkins' Champion and Electric Tooth X Cuts ..... ₩ foot 30¢
Atkins' Hollow Back X Cuts. ..₩ foot 20¢
Atkins' Mulay, Mill and Drag 40%
Atkins' One-Man Saw, with handles. ..... ₩ foot 40¢
Peace Circular and Mill 45%
Peace Hand Panel and Rip 25%
Peace Cross Cuts 45%
Richardson's Circular and Mill 45%
Richardson's X Cuts 45%
Richardson's Hand, &c 25%
C. E. Jennings & Co., Hand, Panel and Rip 25%

Hack Saws—

Griffin's, complete ..... 40&10@50%
Griffin's Hack Saw, Blades ..... 40&10@50%
Star Hack Saws and Blades 25%
Eureka and Crescent 25%

Scroll—

Lester, complete, $10.00 ..... 25%
Rogers, complete, $4.00 ..... 25%
Barnes' Builders' and Cabinet Makers', $15 ..... 25%
Barnes' Scroll Saw Blades 35%

Saw Frames—See Frames, Saw.

Saw Sets—See Sets, Saw.

Saw Tools—See Tools, Saw.

Scales—

Hatch, Counter, No. 171, good quality, ₩ doz $21.00
Hatch, Tea, No. 161 ..... ₩ doz $6.75@$7.00
Union Platform, Plain ..... $2.10@2.20
Union Platform, Striped ..... $2.20@2.30
Chatillon's Grocers' Trip Scales 50%
Chatillon's Eureka 25%
Chatillon's Favorite 40%
Family, Turnbulls ..... 30@30&10%
Richie Bros.' Platform 40%

Scale Beams—See Beams, Scale

Scissors, Fluting 45%

Scrapers—

Adjustable Box Scraper (S. R. & L. Co.) $6.50 ..... 30&10%
Box, 1 Handle ..... ₩ doz $4.00. 10%
Box, 2 Handle ..... ₩ doz $6.00. 10%
Defiance Box and Ship ..... 20&10%
Foot ..... 50&10@60%
Ship, Common ..... ₩ doz $3.50 net
Ship, R. I. Tool Co 10%

Screen Window and Door Frames—See Frames.

Screw Drivers—See Drivers, Screw.

Screws.

Bench and Hand—

Bench, Iron ..... 55&10@55&10&10%
Bench, Wood, Beech ..... ₩ doz $2.25
Bench, Wood, Hickory ..... 20&10%
Hand, Wood ..... 25&10@25&10&5%
Lag, Blunt Point, list Jan. 1, 1890. 75&10%
Coach and Lag, Gimlet Point, list Jan. 1, 1890 ..... 75@75&10%
Bed ..... 25&5%
Hand Rail, Sargent's ..... 60%&10%
Hand Rail, H. & B. Mfg. Co ..... 70&10@75%
Hand Rail, Am. Screw Co 75%
Jack Screws, Millers Falls list. .60@50&5%
Jack Screws, P. S. & W 35%
Jack Screws, Sargent ..... 60&10@60&10&5%
Jack Screws, Stearns' ..... 40@40&10%

Cork—

Humason & Beckley Mfg. Co ..... 40&10@50%
Williamson's ..... 33⅓@33⅓&5%
Howe Bros & Hulbert 35%

Machine—

Flat Head, Iron 55%
Round Head, Iron 50%

Wood—

List March 1, 1889.
Flat Head Iron 50%
Round Head Iron 40%
Flat Head Brass 45%
Round Head Brass 35%
Flat Head Bronze 45%
Round Head Bronze 35%
Extra 10 @ 10&5 % often given.
Rogers' Drive Screws 66⅔%

Scroll Saws—See Saws, Scroll.

Scythe Snaths—See Snaths, Scythe.

Sets.

Awl and Tool.

Aiken's Sets, Awls and Tools, No. 20, ₩ doz $10.00 ..... 55&10%
Fray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $12; 4, $9 ..... 25@25&10%
Miller's Falls Adj. Tool Hdls., Nos. 1, $12, 2, $18 ..... 25%
Henry's Combination Haft ..₩ doz $6.50
Brad Sets, No. 42, $10.50; No. 43, $12.50 ..70&10&5%
Stanley's Excelsior: No. 1, $7.50; No. 2, $4.00; No. 3, $5.50 ..... 30&10%

Nail—

Square ..... ₩ gr., $4.00@$4.25
Round ..... ₩ gr. $3.25
Buck Bros 27½%
Cannon's Diamond Point ..₩ gr., $12, 20%

Rivet.

Regular list ..... 50&10%

Saw—

Stillman's Genuine ..₩ doz $5.00@7.75, 40&5%
Stillman's Imita ..₩ doz $3.25@5.25, 40&5@40&10%
Common Lever ..₩ doz $2.00, 40&5%
Morrill's No. 1, $15.00; Nos. 3&4, $24.00, 40&10@50%
Leach's ..No 0, $8.00; No. 1, $15, 15@20%
Nash's ..... 20&10@20&10&10%
Hammer, Hotchkiss $5.50, 10%
Hammer, Bemis & Call Co.'s new Pat. ..... 30&5%
Bemis & Call Co.'s Lever and Spring Hammer ..... 30&5%
Bemis & Call Co.'s Plate 10%
Bemis & Call Co.'s Cross Cut 12½%
Aiken's Genuine ..... $13.00, 50&10%
Aiken's Imitation ..... $7.00, 55&5%
Hart's Pat. Lever 20%
Disston's Star 25%
Leopold ..... 40&10@50%
Atkin's Lever ..₩ doz No. 1, $6.00
Atkin's Criterion ..₩ doz No. 1, $6.00
Croissant (Keller), No. 1, $15.00; No. 2, $24.00 ..... 40&10%
Avery's Saw Set and Punch 50%
Chieftain H. R. Co.'s Superior ..... ₩ doz $15, 50%

Sharpeners, Knife.

Parkin s.
Applewood Handles ..₩ doz $6.00, 40%
Rosewood or Cocobolo. ₩ doz $9.00, 40%

Shaves, Spoke.

Iron 45%
Wood 30%
Bailey's (Stanley R. & L. Co.) ..... 40&10%
Stearns' ..... 30&10%
Cincinnati ..... 25&10%

Shears—

American (Cast) Iron ..75&10@75&10&5%
Barnard's Lamp Trimmers ..₩ doz $3.75
Tinners' ..... 20&2%
Seymour's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's Tailor's Shears 33⅓%
First quality C. S. Trimmers ..80@80&10%
Second quality C. S. Trimmers. 80&10@80&10&10%
Acme Cast Shears ..... 10&10%
Diamond Cast Shears 10%
Clipper ..... 10&10%
Victor Cast Shears ..75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel 40%
Chicago Drop Forge & F. Co., Solid Steel Forged 60%
Clauss Shear Co., Japanned 70%
Clauss Shear Co., Nickeled, same list. 60%
Electric ..... List net

Pruning Shears and Hooks.

Disston's Combined Pruning Hook and Saw ..... ₩ doz $18.00, 20&10%
Disston's Pruning Hook, ₩ doz $12.00, 20&10%
E. S. Lee & Co.'s Pruning Tools 40%
Pruning Shears, Henry's Pat, ₩ doz $3.75@4.00 net
Henry's Pruning Shears, ₩ doz $4.25@ 4.50 net
Wheeler, M. & C. Co.'s Combination, ₩ doz $12.00, 20%
Duniap's Saw and Chisel, ₩ doz $8.50, 30%
J. Mallinson & Co., No. 1, $5.25; No. 2 7.25
P., S. & W. Co 60%

Tinners', &c.—

Shears and Snips (P. S. & W.) ..... 20@25%
Snips, J. Mallinson & Co 33⅓%

Sheaves—

Sliding Door—

M. W. Co., list July, 1888 ..50&10@60&5%
R. & E., list Dec. 15, 1885 ..... 55&20%
Corbin's list ..... 60&10&2%
Patent Roller ..... 60&10&2%
Patent Roller, Hatfield's 75%
Russell's Anti-Friction, list Dec. 18, 1885 ..... 60&2%
Moore's Anti-Friction 50%

Sliding Shutter—

R. & E. list Dec. 18, 1885 ..... 60&10&2%
Sargent's list ..... 60&10%
Reading list ..... 60&10&10%

Ship Tools—

L. & I. J. White ..... 20&5%

Shoes, Horse, Mule, &c.—

Horse—

Burden's, Perkins', Phœnix, at factory. $4.00

Mule—

Add $1 ₩ keg to above prices.

Ox, Wrought—

Ton lots ..... ₩ ℔ 9¢
1000 ℔ lots ..... ₩ ℔ 9½¢
500 ℔ lots ..... ₩ ℔ 10¢

Shot—

(Eastern prices 2¢ off, cash, 5 days.

Drop, ₩ bag, 25 ℔ $1.62
Drop, ₩ bag, 5 ℔ ..... .38
Buck and Chilled, ₩ 25-℔ bag 1.87
Buck and Chilled, ₩ 5-℔ bag ..... .43

Shovels and Spades—

Ames' Shovels, Spades, &c., list Nov. 1, 1885 ..... 20%
NOTE.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron ..... 50&10%
Griffith's C. S. ..... 60@60&10%
Griffith's Solid C. S. R. R. Goods 20%
Old Colony (Sanford Fork & Tool Co). 35%
St. Louis Shovel Co ..... 20@20&7½%
Hussey, Binns & Co ..... 15@25%
Hubbard & Co ..... 20@20&7½%
Lehigh Mfg. Co ..... 50&10%
Payne Pettebone & Son, list January, 1886 ..... 30%
Remington's (Lowman's Pat.) ..90&10@40%
Rowland's, Black Iron ..... 50&10%
Rowland's Steel ..... 60&5@60&10%

Shovels and Tongs—

Iron Head ..... 60&10@60&10&5%
Brass Head ..... 60&10&10%

Sieves—

Mann's Tin Rim ..... 50&25%
Buffalo Metallic, S. S. & Co ..... 50&25%
Shaker (Barler's Pat.) Flour Sifters ..... ₩ doz $2.00; ₩ gr $21.60
Electric ..... ₩ gr $21.00
A. & W. Sifters ..... ₩ doz 2.00
Hunter's ..... ₩ doz $2.00
Smith's Adjustable Sifters ..... ₩ doz $2.00
Smith's Adjustable Milk Strainer. ..... ₩ doz $2.00
Smith's Adjustable T. & C Strainer. ..... ₩ doz. $1.25

Sieves, Wooden Rim—

	Iron.	Plated.
Mesh 18, Nested, ₩ doz..	80¢	$1.00
Mesh 20, Nested, ₩ doz..	95¢	1.10
Mesh 24, Nested, ₩ doz..	$1.15	1.25

Skeins, Thimble—

Western list ..... 75&5@75&10%
Columbus Wrt. Steel. Special net prices
Coldbrookdale Iron Co 60%
Utica P. S. T. Skeins 60%
Utica Turned and Fitted 35%

Slates—

School, by case ..... 50&10@50&10&10%

Snaps, Harness, &c.—

Anchor (T. & S. Mfg. Co.) 65%
Fitch's (Bristol) ..... 50&10%
Hotchkiss 10%
Andrews 50%
Sargent's Patent Guarded ..... 70&10&10%
German, new list ..... 40&10%
Covert ..... 50&2%
Covert, New Patent ..... 50&5&2%
Covert, New R. E ..... 60&2%
Covered Spring ..... 60&10&10%

Snaths, Scythe.

List ..... 50&10@50&10&5%

Soldering Irons—See Irons, Soldering.

Spittoons, Cuspidors, &c.

Standard Fiberware—

Cuspidors, 8½-inch, ₩ doz., No. 5, $8; No. 5X $9.
Spittoons, Daisy, 8-inch, No. 1, $4; 10 and 11 inch, $6.

Spoke Shaves—See Shaves, Spoke.

Spoke Trimmers—See Trimmers, Spoke.

Spoons and Forks—

Tinned Iron—

Basting, Cen. Stamp. Co.'s list ..70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list ..... 70&10%
Buffalo S. S. & Co ..... 33⅓&2%

Silver-Plated—(4 mos. or 5% cash 30 days).

Meriden Brit. Co., Rogers ..... 40&15%
C. Rogers & Bros ..... 40&15%
Rogers & Bro ..... 40&15%
Reed & Barton ..... 40@40&5%
Wm. Rogers Mfg. Co ..... 40, 15&5%
Simpson, Hall, Miller & Co ..... 40, 15&5%
Holmes & Edwards Silver Co ..40, 15&5%
L. Boardman & Son ..... 50&12½%

Miscellaneous.

Holmes & Edwards Silver Co.:
No. 67 Mexican Silver ..... 50&10&5%
No. 30 Silver Metal ..... 50&10&5%
No. 24 German Silver ..... 50&10&5%
No. 50 Nickel Silver ..... 50&5%
No. 49 Nickel Silver ..... 50&10&5%
Wm. Rogers Mfg. Co.
Rogers' Silver Metal ..... 50, 10&5%
18% Rogers' German Silver ..... 60&5%
22% Rogers' Nickel Silver. ..... 50&5%
German Silver ..... 50@50&5
German Silver, Hall & Elton ..50&5% cash
Nickel Silver ..... 50&5@50&10&5% cash
Britannia 60%
Boardman's N'ck'l Silver. 40&7½&5% cash
Boardman's Britannia Spoons, case lots ..... 50&12½&5% cash

Springs—

Door.—

Torrey's Rod, regular size ..₩ doz $1.80
Gray's, ₩ gr., $20.00 ..... 20%
Bee Rod ₩ gr., $20.00 ..... 20%
Warner's No. 1, ₩ doz, $2.50; No. 2, $3.30 ..... 40&10@50%
Gem (Coil), list April 19, 1886 ..... 10%
Star (Coil), list April 19, 1886 ..... 20%
Victor (Coil) ..... 60@60&10%
Champion (Coil) ..... 60&10@60&10&10%
Philadelphia, 5 in., $5.00; 8 in., $7.75.. %
Cowell's ..No. 1, ₩ doz, $18.00; No. 2, $15.00 ..... 50%
Rubber, complete, ₩ doz, $4.50 ..55&10%
Hercules 50%
Shaw Door Check and Spring. 25@30@35%

Carriage, Wagon, &c.—

Elliptic, Concord, Platform and Half Scroll ..... 60&10&10%
Cliff's Bolster Springs 25%

Squares—

Steel and Iron ..... } .....80 &10%
Nickel-Plated ..... }
Try Square and T Bevels ..60&10@60&10 &10%
Disston's Try Square and T Bevels 50%
Winterbottom's Try and Miter ..... 30&10%
Starrett's Micrometer Caliper Squares. 25%
Avery's Flush Bevel Squares 40%
Avery's Bevel Protractor 50%

Squeezers.

Fodder.—

Blair's ..... ₩ doz $2.00
Blair's "Climax" ..... ₩ doz $1.25

Lemon—

Porcelain Lined, No. 1 ..₩ doz $6.00, 25&30%
Wood, No. 2 ..... ₩ doz $3.00, 35%
Wood, Common ..... ₩ doz $1.70@1.75
Dunlap's Improved ..... ₩ doz $3.75, 20%
Sammis ..No. 1, $5.00; No. 2, $9; 12, $18 ₩ doz ..... 25&10%
Jennings' Star ..... ₩ doz $2.50
The Boss ..... ₩ doz $2.50
Dean's ..Nos. 1, ₩ doz $6.50; 2, $3.35; 3, $1.90; Queen, $2.50
Little Giant ..... 50&50&5%
King ..... 40&5%
Hotchkiss Straight Flash ..₩ doz $12.00
Silver & Co., Glass ..... ₩ gro. $9.00

Standard Fiber Ware—See Ware, Standard Fiber.

Staples.

Blind—

Barbed, ½ in. and larger ..₩ ℔ 7@7½¢
Barbed, ¾ in ..₩ ℔ 8@8½¢
Fence Staples, Galvanized. } Same price as B'b Wire. See Trd. Rep.
Fence Staples, Plain ..... }

Steelyards ..... 40&10@50%

Stocks and Dies—

Blacksmith's
Waterford Goods ..... 40@40&10%
Butterfield's Goods ..... 40@40&10%
Lightning Screw Plate ..... 25@30%
Reece's New Screw Plates ..33⅓&5@40%
Reversible Ratchet ..... 30 %
Gardner 25%

Stops, Bench.

Morrill's ..... ₩ doz $9, 50%
Hotchkiss's ..... ₩ doz $5, 10@10&10%
Weston's, No. 1, $10; No. 2, $9.25&10&5%
McGill's ..... ₩ doz $3 ..... 10%
Cincinnati ..... 25&10%

Stone—

Hindostan No. 1, 8¢; Axe, 3¾¢; Slips No. 1, 4¾¢
Sand Stone ..... ₩ ℔ 2¼¢
Washita Stone, Extra ..... ₩ ℔ 20@21¢
Washita Stone, No. 1 ..... ₩ ℔ 15&16¢
Washita Stone, No. 2 ..... ₩ ℔ 11@12¢
Washita Slips, No. 1, Extra ..₩ ℔ 37@40¢
Washita Slips, No. 1 ..... ₩ ℔ 25@26¢
Arkansas Stone, No. 1, 4 to 6 in ₩ ℔ $1.50
Arkansas Stone, No. 1, 6 to 9 in ₩ ℔ $1.85
Turkey Oil Stone, 4 to 8 in ..... ₩ ℔ 40¢
Turkey Slips ..... ₩ ℔ $1.00@1.50
Lake Superior, Chase ..... ₩ ℔ 16¢
Lake Superior Slips, Chase ..₩ ℔ 31@32¢
Seneca Stone, Red Paper Brand ..₩ ℔ 18@20¢
Seneca Stone, High Rounds ..₩ ℔ 20@25¢
Seneca Stone, Small Whets ..₩ gro $24.00

Stove Polish—See Polish, Stove.

Stretchers, Carpet.

Cast Steel, Polished ..... ₩ doz $2.25
Cast Iron, Steel Points ..... ₩ doz 80¢
Socket ..... ₩ doz $1.75
Bullard's ..... 25@25&10%

Strops, Razor—

Genuine Emerson ..... 60@60&5%
Imitation " ..₩ doz $2.00, 20&10&5%
Torrey's 20%
Badger's Belt and Com ..... ₩ doz $2.00
Lamont Combination ..... ₩ doz $4.00
Jordan's Pat. Padded, list Nov. 1, '89. 50%
Electric ..... List net

Stuffers or Fillers, Sausage—

Miles' "Challenge," ₩ doz $20, 50@50&5%
Perry ..₩ doz, No. 1, $15.00; No. 0, $21.00 ..... 50&5@50&10%
Draw Cut No. 4, each $30.00 ..... 20%
Enterprise Mfg. Co ..... 20&10@30%
Silver's ..... 40&10%

Sweepers, Carpet.

Bissell No. 5 ..... ₩ doz $17.00
Bissell No. 7 New Drop Pan ..₩ doz $19.00
Bissell, Grand ..... ₩ doz $36.00
Grand Rapids ..... ₩ doz $24.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic ..... ₩ doz $15.00
Jewel ..... ₩ doz $17.00
Improved Parlor Queen, Nickeled ..... ₩ doz $27.00
Japanned ..... ₩ doz $24.00
Excelsior ..... ₩ doz $22.00
Garland ..... ₩ doz $18.00
Parlor Queen ..... ₩ doz $24.00
Housewife's Delight ..... ₩ doz $15.00
Queen ..... ₩ doz $16.00
Queen, with band ..... ₩ doz $18.00
King ..... ₩ doz $30.00
Weed, Improved ..... ₩ doz $18.00
Hub ..... ₩ doz $16.00
Cog Wheel ..... ₩ doz $16.00
Conqueror ..... ₩ doz $22.00
Easy ..... ₩ doz $22.00
Monarch ..... ₩ doz $22.00
Goshen ..... ₩ doz $21.00

Tacks, Brads, &c.—

List Oct. 19, 1889. Standard Weights.

Carpet Tacks—
American Iron, Blued 77½%
Am'ican Iron, Tin'd or Cop'd. 77½%
Steel, Plain or Bright 75%
Steel, Tinned or Coppered 75%
Swedes Iron, Blued 75%
Swedes Iron, Tinned or Cop'd ..75%
American Iron Cut Tacks 75%
Swedes Ir. Uphol'rs' Tacks, Blued. 75%
Swedes Iron Upholsterers' Tacks, Tinned 77½%
Gimp and Lace Tacks, Blued 75%
Gimp and Lace Tacks, Tinned ..77½%
Swedes Iron Basket or Trimmers' Tacks ..... 70&10%
Miners' Tacks 77½%
Bill-Posters' or Railroad Tacks ..75%
Bill-Posters' or Railroad Tacks, Tinned 77½%
Copper Tacks 40%
Copper Finish. & Trunk Nails 40%
Cigar Box Nails 50%
Zinc Glaziers' Points 50%
Picture-Frame Points 50%
Looking-Glass Tacks 50%
Brush Tacks 60%
Tin-Capped Trunk Nails 60%
Finishing Nails 70%
Trunk and Clout Nails, Black and Tinned 72½%
Common and Patent Brads 70%
Hungarian Nails 70%
Basket and Chair Nails 65%
Leathered Carpet Tacks 40%

Miscellaneous—

Double-Pointed, 120 count ..... 85&10%
Wire Carpet Nails ..... 50&10%
Plymouth Rock Steel Carpet Tacks..25%

Extra 10 @ 10&10 %

Wire Brads & Nails, see Nails, Wire.
Steel-Wire Brads, R. & E. Mfg. Co.'s list.....50&10%

Tapes, Measuring—

American.....40@40&5%
Spring.....40%
Chesterman's, Regular list.....25@30%

Thermometers—

Tin Case.....80@80&10%

Thimble Skeins—See Skeins.

Ties, Bale- Steel

Standard Wire, list.....50&10&5%

Tinners' Shears, &c.—See Shears, Tinners', &c.

Tinware—

Stamped, Japanned and Pieced, list Jan. 20 1887.....70&10@70&10&5%

Tire Benders, Upsetters, &c—
See Benders and Upsetters, Tire.

Tools.

Coopers'—

Bradley's.....20%
Barton's.....20@20&5%
L. & I. J. White.....20&5%
Albertson Mfg. Co.....25%
Beatty's.....30%
Sandusky Tool Co.....30@30&5%
Fhaves, Cincinnati Tool Co.....20%

Lumber.

Ring Peavies, "Blue Line"...₱ doz $20.00
Ring Peavies, Common.....₱ doz $18.00
Steel Socket Peavies.....₱ doz $21.00
Mall. Iron Socket Peavies....₱ doz $19.00
Cant Hooks, "Blue Line"..₱ doz $16.00
Cant Hooks, Common Finish..₱ doz $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish.....₱ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish.....₱ doz $14.00
Cant Hooks, Clip Clasp, Common Finish.....₱ doz $12.00
Hand Spikes....₱ doz 6 ft., $15.00; 8 ft., $20.00
Pike Poles, Pike & Hook, ₱ doz., 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₱ doz, 12 ft. $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not ironed, ₱ doz, 12 ft. $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₱ doz, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00
Swamp Hooks.....₱ doz $18.00

Saw.

Atkins' Perfection.....₱ doz $12.00
Atkins' Excelsior.....₱ doz $6.00
Atkins' Giant.....₱ doz $4.00

Tobacco Cutters—See Cutters, Tobacco.

Transom Lifters — See Lifters, Transom.

Traps—

Game—

Newhouse.....40@40&5%
Oneida Pattern.....70&10%
Game, Blake's Patent.....40&10&5%

Mouse and Rat—

Mouse Wood, Choker, ₱ doz holes, 11@12¢
Mouse, Round Wire.....₱ doz $1.50, 10%
Mouse, Cage, Wire.....₱ doz $2.50, 10%
Mouse, Catch-'em-alive....₱ dz $2.50 15%
Mouse, Bonanza.....₱ doz $0.90@$1.00
Mouse, Delusion.....₱ $1.00@$1.25
Rat, Decoy.....₱ gr $10.00, 10%
Ideal.....₱ gr $10.00
Cyclone.....₱ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₱ doz., 90¢; in full cases, ₱ doz.....75¢
Hotchkiss Imp. Rat Killer..₱ gro $18.50
Hotchkiss New Rat Killer...₱ gro $16.50
Schuyler's Rat Killer.....₱ gro $15.00

Triers—

Butter and cheese.....25%

Trimmers, Spoke.

Bonney's.....₱ doz $10.00, 50%
Stearns'.....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₱ doz. 55&10%
Douglas'.....₱ doz $9.00, 20%
Cincinnati.....25%

Trowels—

Lothrop's Brick and Plastering, 20&10&5@35%
Reed's Brick and Plastering.....15%
Diston's Br'k and Plastering.....25%
Peace's Plastering.....25%
Clement & Maynard's.....20%
Rose's Brick.....15@20%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garden.....70%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list, '82.....40%

Tubes, Boiler—

See Pipe.

Twine—

Flax Twine—	BC.	B.
No. 9, ¼ and ⅛ ℔ Balls	26¢	34¢
No. 12, ¼ and ⅛ ℔ Balls	25¢	33¢
No. 18, ¼ and ⅛ ℔ Balls	22¢	32¢
No. 24, ¼ and ⅛ ℔ Balls	22¢	32¢
No. 36, ¼ and ⅛ ℔ Balls	20¢	31¢

No. 264, Mattrass, ¼ and ⅛ ℔ Balls 52@54¢
Chalk Line, Cotton, ⅛ ℔ Balls.....25¢
Mason Line, Linen, ⅛ ℔ Balls.....55¢
2-Ply Hemp, ¼ and ⅛ ℔ Balls (Spring Twine).....15½¢
3-Ply Hemp, 1 ℔ Balls.....16¢@16½¢
3-Ply Hemp, 1½ ℔ Balls.....15¢@15½¢
Cotton Wrapping, 5 Balls to ℔ ..15¢@16¢
2, 3, 4 and 5-Ply Jute, ⅛ ℔ Balls...10¢
Wool.....6½¢@6½¢
Paper.....13¢@14¢
Cotton Rope, 6, 9, 12 and 15 ℔ to doz..18¢

Vises—

Solid Box.....50&10@50&10&5%

Parallel—

Fisher & Norris Double Screw.....15&10%
Stephens'.....25@30%
Parker's.....20@25%
Wilson's.....55%
Howard's.....40%
Bonney's.....40&10%
Millers Falls.....40@40&10%
Trenton.....40&5@40&10%
Merrill's.....15@20%
Sargent's.....60&10&10%
Backus and Union.....40%
Double Screw Leg.....15&10%
Prentiss.....20@25%
Simpson's Adjustable.....40%
Moore's.....30%

Saw Filers—

Bonney's, Nos. 2 & 3, $15.00.....40&10%
Stearn's.....33⅓&10@33⅓&10&10%
Stearn's Silent Saw Vises.....33⅓@35%
Sargent's.....60%&10%
Hopkins'.....₱ doz $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%

Miscellaneous.

Combination Hand Vises.....₱ gr $42.00
Cowell Hand Vises.....20%
Bauer's Pipe Vises.....10%
Cincinnati.....25&10%
Enterprise Pipe Vises, each.....$3.00

Wagon Boxes—See Boxes, Wagon.

Washer Cutters—See Cutters Washer.

Wagon Jacks—See Jacks, Wagon.

Ware, Hollow, Enameled, &c.

Cast Iron, Hollow—

Stove Hollow-Ware—
Ground.....55&5@60&5%
Unground.....65&10@65&10&5%
White Enameled-Ware—
Maslin Kettles.....60&10&5%
Boilers and Saucepans.....40%
Tinned Boilers and Saucepans.....40%
Rustless Hollow-Ware.....50@50&5%
Gray Enameled-Ware—
Stove.....50%
Maslin Kettles.....60&10&10%
Boilers and Saucepans.....40&5%

Enameled—

Agate and Granite Ware, list Jan. 1, 1889.....33⅓&10%
Ironclad Enameled Ware...dis 33⅓&10%

Kettles—

Galvanized Tea-Kettles—

Inch....	6	7	8	9
Each....	55¢	60¢	65¢	75¢

Standard Fiber—

	Per Dozen. Plain.	Dec'r'd
Wash-Basins, 10½ in.	$2.00	$2.25
Wash-Basins, 12 in.	2.25	2.75
Keelers, 11½ in.		4.00
Cuspidors		8.00
Spittoons, "Daisy," 8 in.	4.00	4.50
Peck Measure	4.00	
Half-peck Measure	3.50	

See also Pails.

Indurated Fiber—25%

Spittoons, No. 2, ₱ doz.....$9.00
Basins, Ringed, ₱ doz., No. 2, $4.80; No. 3.....$4.20
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₱ nest.....$7.50
Keelers, Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₱ nest.....$3.70
Butter Bowls 15, 17 and 19-inch (3 pieces), ₱ nest.....$2.25
Liquid Measures, pt., qt., 2 qt. and funnel (4 pieces) ₱ set.....$3.00
Dry Measures, 1, 2, 4, 8 and 16 qts. (5 pieces), ₱ set.....$3.00
See also Pails.

Silver Plated, Hollow—
4 mo. or 5 % cash in 30 days.

Reed & Barton, Meriden Britannia Co., Simpson, Hall, Miller & Co., Rogers & Brother, Hartford Silver Plate Co — 40&5%
William Rogers Mfg. Co.....40&5&5%

Washers—

Size	¼	5-16	⅜	½	⅝	¾	1
Washers....	6¢	5½	4½	3½	3	3	3

In lots less than 200 ℔, ₱ ℔, add ¼¢, 5-lb boxes 1¢ to list.

Wedges—

Iron.....₱ ℔ 3½¢
Steel.....₱ ℔ 4 ¢

Weights, Sash—

Solid Eyes.....₱ ton $18@$19

Well Buckets, Galvanized—See Buckets, Well, Galvanized.

Wheels, Well.

8 in., $2.25; 10 in., $2.70; 12 in., $3.25

Wire and Wire Goods—

Iron—

Market,
Br. & Ann., Nos. 0 to 18.....75%
Cop'd, Nos. 0 to 18.....72½%
Galv., Nos. 0 to 18.....65%
Tin'd, Tinned list Nos. 0 to 18.....65%
Stone,
Br. and Ann'd, Nos. 16 to 18.....75%
Bright and Ann'd, Nos. 19 to 26....77½%
Br. and Ann'd, Nos. 27 to 36.....80%
Tinned.....
Tinned Broom Wire, 18 to 21, ₱ ℔...5½¢
Galvanized Fence, Nos. 8 and 9.....67½%
Annealed Fence, Nos. 8 and 9.....77½%
Annealed Grape, Nos. 10 to 14.....77½%
Brass, list Jan. 18, 1884.....20%
Copper, list Jan. 18, 1884.....25%
Barb Fence.....See Trade Report
Annealed Wire on Spools.....50%
Malin's Steel and Tin'd on Spools.....50%
Malin's Brass and Cop. on Spools.....40%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to 2, 30¢
Steel Music Wire, Nos. 12 to 30..60¢ ₱ ℔
Picture Wire.....New list 50¢
Wire Clothes Lines, see Lines.

Bright Wire Goods—

Standard list.....35%

Wire Cloth and Netting.

Painted Screen Cloth, good quality, ₱ 100 sq. ft., $1.60 @ $1.75
Galvanized Wire Netting.....70&10@75%

Wire Rope—See Rope, Wire.

Wrenches—

American Adjustable.....40%
Baxter's Adjustable "S"....40&10&50%
Baxter's Diagonal.....40&10&50%
Coes' Genuine.....50&3%
Coes' "Mechanics'".....50&10&3%
Girard Standard.....65&10%
Lamson & Sessions' Engineers'..60&10%
Lamson & Sessions' Standard....70&10%
P. S. & W. Agricultural, Girard Agricultural, Lamson & Sessions' Agric'l.. — 75@75&10
Bemis & Call's
Pat. Combination.....35%
Merrick's Pattern.....35%
Brigg's Pattern.....25%
Cylinder or Gas Pipe.....40&5%
No. 3 Pipe.....40&10%
Aiken's Pocket (Bright).....$6.00, 50&10%
The Favorite Pocket....₱ doz $4.00, 40%
Webster's Pat. Combination.....25%
Boardman's.....20&10%
Always Ready.....25&5%
Alligator.....50%
Donohue's Engineer.....20&10%
Acme, Bright.....50&2%
Acme, Nickeled.....40&2¢
Hercules.....70%
Walker's.....55&3%
Diamond Steel.....55&3%
Cincinnati Brace Wrenches.....25&10%
Tafts' Vise Wrench.....55&10&3%

Wringers, Clothes—

List March 11, 1889, 2% cash.

Wrought Goods—

Staples, Hooks, &c., list Jan. 12, 1888, 80&15@55%

PAINTS, OILS AND COLORS.—Wholesale Prices.

Animal and Vegetable Oils.

Linseed, City, raw..per gal.	62	@	64
Linseed, City, boiled.....	65	@	67
Linseed, Western, raw.....	57	@	..
Lard, City, Extra Winter..	53	@	54
Lard, City, Prime.....	50	@	..
Lard, City, Extra No. 1.....	45	@	46
Lard, City, No. 1.....	42	@	43
Lard, Western, prime.....	50	@	51
Cotton-seed, Crude, prime.	27	@	28
Cotton-seed, Crude, off grades.....	20	@	25
Cotton-seed, Summer Yellow, prime.....	34	@	..
Cottonseed, Summer Yellow, off grades.....	30	@	33
Sperm, Crude.....	70	@	71
Sperm, Natural Spring.....	70	@	72
Sperm, Bleached Spring.....	75	@	77
Sperm, Natural Winter.....	76	@	78
Sperm, Bleached Winter....	81	@	83
Whale, Crude.....	..	@	..
Whale, Natural Winter.....	..	@	53
Whale, Bleached Winter....	..	@	55
Whale, Extra Bleached.....	..	@	58
Sea Elephant, Bleached Winter.....	..	@	62
Menhaden, Crude, Sound...	20	@	22
Menhaden, Crude, Southern	..	@	..
Menhaden, Light Pressed..	24	@	25
Menhaden, Bleached W'ter.	31	@	32
Menhaden, Extra Bleached	35	@	..
Tallow, City, prime.....	..	@	45
Tallow, Western, prime....	..	@	..
Cocoanut, Ceylon.....	7½	@	7¾
Cocoanut, Cochin.....	..	@	8½
Cod, Domestic.....	31	@	32
Cod, Foreign.....	33	@	34
Red Elaine.....	31	@	34
Red Saponified..... ₱ ℔	4¾	@	5
Bank.....per gal	24	@	..
Straits.....	25	@	..
Olive, Italian, bbls.....	70	@	..
Neatsfoot, prime.....	62½	@	75
Palm, prime, Lagos.... ₱ ℔	6¾	@	7

Mineral Oils.

Black, 29 gravity, 25 @ 30 cold test.....per gal	8½	@	9
Black, 29 gravity, 15 cold test.....	9	@	9½
Black, 29 gravity, summer.	7	@	8
Cylinder, light, filtered.....	15	@	20
Cylinder, dark, filtered	14	@	20
Cylinder, dard, st'm refined	10	@	18
Paraffine, 23½ @ 24 gravity.	12½	@	13
Paraffine, 25 gravity.....	11½	@	12
Paraffine, 28 gravity.....	10½	@	11
Paraffine, red, 21 @ 22 gr'ty	..	@	14½
Paraffine, red, 23½@23 gr'ty	12½	@	13

Spirits Turpentine.

In Barrells.....40 @ 40½

Paints and Colors.

Barytes, Prime White..... ₱ ton.	$21.00	@	$22.50
Barytes, Amer. refined....20.00		@	....
Barytes, Amer. No. 1....18.00		@	....
Barytes, Amer. No. 2....16.00		@	....
Barytes, Amer., off-color.13.00		@	15.00
Blue, Celestial..... ₱ ℔	6	@	8
Blue, Chinese	50	@	55
Blue, Prussian.....	25	@	40
Blue, Ultramarine	10	@	30
Brown, Spanish	½	@	1
Brown, Vandyke, Amer..	3	@	3½
Brown, Vandyke, English	6	@	8
Black, American Drop....	8	@	10
Black, English Drop.....	12	@	14
Black, Frankfort, Drop...	5	@	18
Black, Lamp, common....	12	@	18
Black, Lamp, medium.....	19	@	25
Black, Lamp, prime.....	27	@	33
Carmine, No. 40, in bulk.	3.10	@	..
Carmine, No. 40, in boxes or barrels.....	3.20	@	..
Carmine, No. 40, in ounce bottles.....	4.20	@	..
Chalk, in bulk.... ₱ ton.	2.50	@	..
Chalk, in bbls..₱ 100 ℔.	30	@	35
China Clay, English.... ₱ ton.	12.00	@	18.00
Cobalt Oxide, prep'd....	2.90	@	....
Cobalt Oxide, black.. lots 100 ℔.	2.60	@	....
Cobalt, Oxide, black..... less 100 ℔.	2.65	@	....
Green, Paris, in bulk....	14	@	14½
Green, Paris, 170 @ 175 ℔ kegs.....	14½	@	15
Green, Paris, small pack.	16	@	21
Green, Chrome, ordinary	8	@	13
Green, Chrome, pure....	22	@	25
Lead, Eng., B.B. white....	9	@	10
Lead, Amn. White, dry or in oil: Kegs, lots less than 1000 ℔..		@	7¾
Kegs, lots 1000 ℔ to 5 tons.		@	7¼
Kegs, lots 5 tons to 12 tons..		@	7⅛
Kegs, lots 12 tons and over..		@	7
Lead, White, in oil, 25 ℔ tin pails, add to keg price.		@	⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price.....		@	1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.		@	2½
Lead, Red, bbls. and ½ bbls....	6¾	@	7½
Lead, Red, kegs.....	7	@	7¾
Litharge, kegs.....	7	@	7¾
Litharge, bbls. and ½ bbls.....	6¾	@	7½

TERMS, &c.—Lead and Litharge.—On lots of 1000 ℔ or over, 60 days' time or 2½ % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle.....	1.35	@	1½
Ocher, French Washed....	1½	@	2½
Ocher, German Washed...	1½	@	3
Ocher, American.....	½	@	1¼
Orange Mineral, English..	9	@	9½
Orange Mineral, French....	9½	@	10
Orange Mineral, German ..	8½	@	9½
Orange Mineral, American.	8	@	8½
Paris White, English Cliff-stone.....	90	@	1.10
Paris White, American.....	70	@	80
Red, Indian, English.....	5½	@	7
Red, Indian, American.....	2	@	6
Red, Turkey.....	9	@	14
Red, Tuscan	9	@	11
Red, Venetian, American.. ₱ 100 ℔.	1.00	@	1.35
Red, Venetian, English....	1.25	@	1.75
Sienna, Italian, Burnt and Powd.₱ ℔	5	@	6¾
Sienna, Ital., Burnt Lumps	1½	@	3½
Sienna, Ital., Raw, Powd..	5	@	6½
Sienna, Ital., Raw Lumps..	2	@	3½
Sienna, American, Raw....	1½	@	1¾
Sienna, American, Burnt and Powdered.....	1½	@	1¾
Talc, French.....	1½	@	1½
Talc, American.....	1	@	1¼
Terra Alba, Fr'ch. ₱ 100 ℔	72½	@	80
Terra Alba, English	80	@	85
Terra Alba, American No.1	70	@	75
Terra Alba, American No.2	38	@	40
Umber, Turkey, Bnt. and Powd.. ₱ ℔	3½	@	4
Umber, Turkey Bnt.Ln	2½	@	3
Umber, Turkey, Raw and Powdered.	3½	@	..
Umber, Turkey, R'w Lmps	2½	@	2¾
Umber, Turkey, Bnt. Amer.	1½	@	1¾
Umber, Turkey, R'w Amer.	1½	@	1¾
Yellow, Chrome.....	10	@	25
Vermilion, Americ. Lead..	11½	@	13
Vermilion, Quicks'er, bulk.	..	@	77½
Vermilion, Quicks'er, bags.	..	@	78½
Vermilion, Quicksilver, smaller pkgs.....	..	@	82½
Vermilion, English Import	85	@	87½
Vermilion, Imitation, Eng.	8	@	25
Vermilion, Trieste.....	87½	@	90
Vermilion, Chinese.....	90	@	95
Whiting, Common. ₱ 100 ℔	40	@	45
Whiting, Gilders'.....	50	@	55
Zinc, American, dry....₱ ℔	4½	@	5½
Zinc, French, Red Seal.....	..	@	8½
Zinc, French, Green Seal..	..	@	8¾
Zinc, French, V. M. X.....	..	@	7
Zinc, Antwerp, Red Seal....	..	@	7½
Zinc, Antwerp, Green Seal	..	@	8¼
Zinc, German, L. Z. O....	..	@	6¾
Zinc, V M. in Poppy Oil, G. Seal, lots of 1 ton and over.....	10¾	@	11¼
lots less than 1 ton	11	@	11½
Zinc, V. M. in Poppy Oil, Red Seal,.....	..	@	..
lots of 1 ton and over....	10	@	10¼
Lots of less than 1 ton....	10¼	@	10¾

DISCOUNTS.—French Zinc.—Discounts to buyers of 10- bbl. lots of one or assorted grades, 1 %; 25 bbls, 2 %, 50 bbls, 4 %. No discount allowed on less than bbl. lots.

Colors in Oil.

Blue, Chinese.....₱ ℔	35	@	40
Blue, Prussian.....	20	@	45
Blue, Ultramar.ine.....	12	@	18
Brown, Vandyke.....	7	@	12
Green, Chrome.....	8	@	13
Green, Paris.....	16	@	18½
Sienna, Raw.....	7	@	13
Sienna, Burnt.....	7	@	13
Umber Raw.....	7	@	10
Umber, Burnt	7	@	10

Spirits Turpentine.

In regular bbls.....40½
In machine bbls.....41

Glue.

Low Grade.....₱ ℔	8	@	10
Cabinet.....	12	@	14
Medium White.....	13	@	15
Extra White.....	17	@	20
French.....	10	@	..
English.....	10	@	15
Irish.....	12	@	15

CURRENT METAL PRICES.

NOVEMBER 19, 1890.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market reports.

IRON AND STEEL.

Bar Iron from Store.

Common Iron:	
⅜ to 2 in. round and square.. 1 to 6 in. x ⅜ to 1 in.....	₩ lb 2.00 @ 2.10¢
Refined Iron:	
⅜ to 2 in. round and square.. 1 to 4 in. x ⅜ to 1½ in..... 4½ to 6 in. x ⅝ to 1 in	₩ lb 2.10 @ 2.30¢
1 to 6 in. x ½ and 5-16	₩ lb 2.30 @ 2.50¢
Rods—⅝ and 11-16 round and sq..	₩ lb 2.20 @ 2.40¢
Bands—1 to 6 x 3-16 to No. 12.....	₩ lb 2.40 @ 2.60¢
"Burden Best" Iron, base price..	₩ lb..... 3.00¢
Burden's "H. B. & S." Iron, base price.....	₩ lb..... 2.80¢
"Ulster"	₩ lb..... 3.00¢
Norway Bars	4.00¢
Narway Shapes	5.00¢

Merchant Steel from Store.

	Per pound.
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots.....	2¾¢
Best Cast Steel, base price in small lots	8 ¢
Best Cast Steel Machinery, base price in small lots.....	5¢

Sheet Iron from Store.

	Common American.	R. G. Cleaned.
10 to 16.....₩ lb	3.00 @ 3.00¢	3.50 @ .....¢
17 to 20.....₩ lb	3.25 @ 3.25¢	3.50 @ 3.75 ¢
21 to 24.....₩ lb	3.35 @ 3.35¢	3.75 @ .....¢
25 and 26....₩ lb	3.45 @	3.75 @ .....¢
27..... ₩ lb	3.55 @ 3.62½¢	4.00 @ .....¢
28.....₩ lb	3.75 @ ... ..¢	4.25 @ .....¢
	B. B.	2d qual.
Galv'd, 14 to 20, ₩ lb,	5.00 @ ...	4.75½ @ .....¢
Galv'd, 21 to 24, ₩ lb,	5.37½ @ ...	5.12½ @ .....¢
Galv'd, 25 to 26, ₩ lb,	5.75 @ ...	5.50 @ .....¢
Galv'd, 27..... ₩ lb,	6.12½ @ ...	5.85½ @ .....¢
Galv'd, 28..... ₩ lb,	6.50 @ ...	6.25 @ .....¢
Patent Planished..... ₩ lb	A 10¢	B, 9¢
Russia..... ₩ lb	9½¢ @ 10¢	
American Cold Rolled B. B..... ₩ lb	5¢ @ 7¢	
Craig Polished Sheet Steel..... ₩ lb,	8½¢	

English Steel from Store.

Best Cast ..... ₩ lb	15 ¢
Extra Cast ..... ₩ lb	16½ @ 17 ¢
Swaged, Cast..... ₩ lb	16 ¢
Best Double Shear..... ₩ lb	15 ¢
Blister, 1st quality..... ₩ lb	12 ¢
German Steel, Best..... ₩ lb	10 ¢
2d quality. ..... ₩ lb	9 ¢
3d quality ..... ₩ lb	8 ¢
Sheet Cast Steel, 1st quality..... ₩ lb	15 ¢
2d quality..... ₩ lb	14 ¢
3d quality..... ₩ lb	12½¢
R. Mushet's "Special" ..... ₩ lb	48 ¢
" " "Titanic"..... ₩ lb	20 ¢

METALS.

Tin.

	Per lb
Banca, Pigs.....	23 ¢
Straits, Pigs.....	22½¢
Straits in Bars --	25 ¢

Tin Plates.

	Charcoal Plates.—Bright.	Per box.
Melyn Grade.....IC, 10 x 14..	@	$6.50
" " ... .IC, 12 x 12..	@	6.75
" " .....IC, 14 x 20..	@	6.50
" " .....IC, 20 x 28..	@	13.25
" " ....IX, 10 x 14.. ...	@	8.00
" " ....IX, 12 x 12..	@	8.25
" " ....IX, 14 x 20..	@	8.00
" " .....IX, 20 x 28..	@	16.00
" " .....DC, 12½ x 17.. ...	@	6.00
" " .....DX, 12½ x 17..	@	7.00
Calland Grade.....IC, 10 x 14..	@	6.50
" " .....IC, 12 x 12..	@	6.75
" " .....IC, 14 x 20.. .. .	@	6.40
" " .....IX, 10 x 14.. .. .	@	7.65
" " . .....IX, 12 x 12..	@	7.90
" " .....IX 14 x 20.	@	7.65
Allaway Grade.....IC, 10 x 14..	@	6.00
" " .. ...IC, 12 x 12..	@	6.15
" " .....IC, 14 x 20..	@	6.00
" " .....IC, 20 x 28..	@	11.80
" " .....IX. 10 x 14..	@	7.17
" " . ....IX, 12 x 12..	@	7.30
" " ..... IX, 14 x 20..	@	7.15
" " .....IX, 20 x 28..	@	14.25
" " ...DC, 12½ x 17.. ...	@	5.65
" " . .DX, 12½ x 17.. 6.00	@	6.65

	Coke Plates.—Bright.	
Steel Coke.—IC, 10 x 14, 14 x 20,.	@	$5.60
10 x 20..	@	7.75
20 x 28,. ...	@	11.25
IX, 10 x 14, 14 x 20..	@	6.50
BV Grade.—IC, 10 x 14, 14 x 20.. ...	@	5.60

	Charcoal Plates.—Terne.	
Dean Grade.—IC, 14 x 20..	@	$5.40
20 x 28.	@	10.70
IX, 14 x 20.....	@	6.10
20 x 28.....	@	12.10
Abecarne Grade.—IC, 14 x 20...	@	5.10
20 x 28...	@	10.35
IX, 14 x 20.... ...	@	6.10
20 x 28..	@	12 10

Tin Boiler Plates.

I CX, 14 x 26.....112 sheets.....	@ $13.50
I CX, 14 x 28.....112 sheets....	@ 13 75
IXX, 14 x 31... ....112 sheets	@ 15 25

Copper.

DUTY: Pig, Bar and Ingot, 1¼¢; Old Copper, 1¢ ₩ lb. Manufactured (including all articles of which Copper is a component of chief value), 3 ⅝ ad valorem.

Ingot.

Lake.....	@ 17¼¢
Baltimore Grade....	@ 15½¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, June 27, 1890, being quotations for all sized lots.

Not wider than	Not longer than	And longer than	Weights per square foot and prices per pound. Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30	72		25	25	25	26	27	28	31	33
30		72	25	25	25	26	28	30	34	....
36	96		25	25	25	27	29	33	36	....
36		96	25	25	26	28	30	34	38	....
48	96		25	25	27	29	31	35	....	....
48		96	25	25	28	30	32	36	....	....
60	96		25	25	30	32	37	....	....	....
60		96	25	26	31	....	....	....	....	....
84	96		26	27	....	....	....	....	....	....
84		96	27	28	....	....	....	....	....	....
Over 84 in. wide			28	30	....	....	....	....	....	....

	16 oz.	14 oz.	12 oz.	10 oz.
All Bath Tub Sheets.....				
Per pound....	$0.27	0.29	0 31	0.35

Bolt Copper, ⅝ inch diameter and over, per pound..... .25¢

Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Copper Bottoms, Pits and Flats.

	Per pound.
14 ounce to square foot and heavier.....	29¢
12 ounce and up to 14 ounce to square foot.....	30¢
10 ounce and up to 12 ounce.....	32¢

Circles less than 8 inches diameter 2 cents per pound additional.

Circles over 13 inches diameter are not classed as Copper Bottoms.

Tinning.

Tinning sheets on one side, 10, 12 and 14 x 48 each.....	8¢
Tinning sheets on one side, 30 x 60 each.....	30¢
For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each.	15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each	12¢
For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.) each.....	12¢
Tinning sheets on one side, other sizes, per square foot.....	2½¢

For tinning both sides double the above prices.

Planished Brass and Copper.

14 x 48.

14 and 16 oz. and heavier..31¢. By the case...30¢ ₩ lb
12 oz. and lighter.....33¢. By the case...32¢ ₩ lb

24 x 48 and 30 x 60.

14 and 16 oz. and heavier..44¢. 12 oz.....37¢ ₩ lb

Seamless Brass and Copper Tubes.

O. G.	N. G.	⅜	½	⅝	¾	⅞	1	1¼
8-14	6-12	39	35	32	31	30	29	26
15	13	40	35	33	32	31	30	27
16	14	41	36	34	33	32	31	27
17	15	42	37	35	32	33	32	28
18	16	44	38	36	34	33	32	29
19	17	45	39	37	36	35	34	31
20	18-19	46	41	39	38	37	36	33
21	20	48	43	41	40	39	38	36
22	21	50	44	42	41	40	39	38
23	22	52	46	44	43	42	41	41
24	23	55	48	45	45	43	42	43
25	24	58	51	48	47	46	45	47

Copper Bronze and Gilding Tube, 4¢ ₩ lb additional.

Brazed Brass Tubing. (To No. 20, inclusive.

Above 5-16 inch to 3 inch, inclusive	35¢
Plain, above 3 inch.....	45¢
Plain, 5-16 inch.....	45¢
Plain, ¼ inch.....	60¢
Plain, 3-16 inch.....	$1.00
Plain, ⅛ inch.....	1.50
Fancy Tubing, Brass, to No. 20, inclusive.....	43¢ ₩ lb
Bronze Tubing, 3¢ ₩ lb more than Brass.	
Discount from list.....	25 @ ... %

Roll and Sheet Brass.

Discount from list..... 20 %

High Brass Rods.

Over 1 inch diameter..	29¢
¼ inch to 1 inch diameter, both inclusive.....	30¢
No. 8 and less than ¼ inch diameter.....	28¢
Smaller than No. 8.....	32¢

Hexagon, Octagon and Square, 2¢ ₩ lb advance over Round Rods.

Spelter.

Duty: Pig, Bars and Plates, $1.50 ₩ 100 lb.

Western Spelter	6½ @ 6¾¢
"Bertha"	8¼¢

Zinc.

Duty; Sheet, 2½¢ ₩ lb.

600 lb casks..... ..	7¼¢
Per lb	7¾¢

Lead.

Duty: Pig, $2 ₩ 100 lb. Old Lead, 2¢ ₩ lb. Pipe and Sheets, 2½¢ ₩ lb.

American	5¼¢ @ 5¾¢
Bar.....	6¢
Pipe, subject to trade discount....	8%
Tin-Lined Pipe, subject to trade discount.....	15¢
Block Tin Pipes, subject to trade discount.....	40¢
Sheet, subject to trade discount.....	8¼¢

Solder.

½ @ ½ (Guaranteed)...	16½¢
No. 1.....	13
Extra Wiping.....	11¾¢ @ 16

The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson.....	₩ lb 22 ¢
Hallett's.	" 20 ¢

ALUMINUM.

Prices in Ingots.

$2.00 ₩ lb in lots of 1000 lb and over.
$2.25 ₩ lb in lots of 500 lb and over.
$2.50 ₩ lb in lots of 100 lb and over.

Prices Per Pound on Rolled Sheets.

(Brown & Sharpe, Standard Gauge.)

Wider than.	2 in.	10 in.	14 in.	18 in.	22 in.
And including.....	10 in.	14 in.	18 in.	22 in.	24 in.
Up to No. 20 inclusive...	$2.50	$2.60	$2.80	$3.00	$3.20
Nos. 21, 22, 23 and 24....	2.60	2.70	2.90	3.10	3.30
Nos. 25 and 26.....	2.70	2.80	3.00	3.20	3.40
Nos. 27 and 28.....	2.80	2.90	3.10	3.30	3.50

Sheets, thinner than No. 28 gauge and wider than 24 inches, special prices not less than $5 per pound.
Add 35 cents per pound for sheets cut to particular widths and lengths.
Sheets rolled to .001 in. and under, 50 cents per ounce.
Leaf in books, 20 cents per book; $2 per pack of 10 books, sheets 5 x 5 inches.

Aluminum Tubing.

From $4 per pound upward, according to size and thickness of walls.

Aluminum Castings.

From 50 cents upwards per pound extra over the cost of the metal in ingots, according to the number wanted, weight, the difficulty of casting, cost of patterns, &c.

Aluminum Wire in Coils.

(Brown & Sharpe, Standard Gauge.)

	Per lb
All numbers up to No. 14 (.064 in.) inclusive.....	$3.00
Nos. 15 (.05706 in.) to 22 (.02534 in.) inclusive....	3.25
Nos. 23 (.02571 in.) and 24 (.0201 in.) inclusive...	3.50
Nos. 25 (.0179 in.) and 26 (.01594 in.) inclusive....	3.75
Nos. 27 (.014195 in.) and 28 (.012641 in.) inclusive	4.00
Nos. 29 (.011257 in.) and 30 (.010023 in.) inclusive	4.25
No. 31 (.008928 in.).....	4.50
No. 32 (.00795 in.).....	4.75
No. 33 (.00708 in.).....	5.00
No. 34 (.00630 in.).....	5.25
No. 35 (.00561 in.).....	5.75
No. 36 (.00500 in.).....	6.25
No. 37 (.00445 in.).....	7.00
No. 38 (.003965 in.).....	8.50
No. 39 (.003531 in.).....	12.00
No. 40 (.003144 in.).....	16.00

Spooling, on 1-pound spools, 15 cents per pound extra
Spooling, on 10-pound spools, 5 cents per pound extra

Old Metals.

(Prices Paid in New York.)

Heavy Copper..... ...	₩ lb 12 ¢
Light Copper...	₩ lb 11 ¢
Heavy Brass.....	₩ lb 10 ¢
Light Brass.....	₩ lb 8 ¢
Lead.....	₩ lb 4 ¢
Tea Lead.....	₩ lb 3½¢
Zinc.....	₩ lb 3 ¢
No. 1 Pewter.....	₩ lb 14 ¢
No. 2 Pewter	₩ lb 8 ¢
Wrought Scrap Iron.....	₩ gross ton $19.00
Heavy Cast Scrap.....	₩ gross ton 12.00
Stove Plate Scrap.....	₩ gross ton 8.00
Burnt Iron.....	₩ gross ton 6.00